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TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS

CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9A

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HEADQUARTERS, DEPARTMENT OF THE ARMY

OCTOBER 1970

77/34

WARNING

HIGH VOLTAGES are present in this equipment.

DEATH ON CONTACT

may result if safety precautions are not observed.

DANGEROUS VOLTAGES ARE PRESENT IN THE FOLLOWING UNITS:

Power Entrance Box

Power Distribution Panel

Teletypewriter TT–98/FG

Terminal, Telegraph TH–22/TG

Converter, Telegraph Telephone Signal CV–425/U

Intercommunication Station LS–147D/FI

Heaters, Exhaust Blower and Air Conditioner

VENTILATION IS ESSENTIAL

To prevent asphyxiation, always ventilate Central Office, Teletypewriter AN/MGC–9A when occupied.

DO NOT TAKE CHANCES!

TECHNICAL MANUAL
No. 11-5815-210-15-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *12 October 1970*

Operator's, Organizational, DS, GS, and Depot Maintenance Manual
Including Repair Parts and Special Tool Lists
CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9A

		Paragraph	Page
CHAPTER 1.	INTRODUCTION		
Section I.	General		
	Scope	1-1	1-1
	Indexes of publications	1-2	1-1
	Forms and records	1-3	1-1
II.	Description and data		
	Purpose and use	1-4	1-3
	Technical characteristics	1-5	1-3
	Table of components	1-6	1-3
	Description	1-7	1-3
	Nomenclature and common names	1-8	1-3
CHAPTER 2.	INSTALLATION		
Section I.	Installation of equipment		
	General	2-1	2-1
	Unpacking and checking	2-2	2-1
	Checking unpacked equipment	2-3	2-1
II.	Installation instructions		
	Installation of SB-86/PS	2-4	2-2
	Installation of TH-22/TG	2-5	2-3
	Installation of TT-98/FG	2-6	2-3
	Installation of TA-312/PT	2-7	2-3
	Installation of CV-425/U	2-8	2-3
	Connection of SB-86/P	2-9	2-4
	Connection of TT-98/FG	2-10	2-5
	Connection of TA-312/PT	2-11	2-5
	Checking the SB-86/P	2-12	2-6
	Checking the TT-98/FG and TH-22/TG	2-13	2-9
	Checking the TA-312/PT and TA-248/TT	2-14	2-10
III.	Installation of assemblage		
	Siting	2-15	2-10
	Installing assemblage	2-16	2-10
	Grounding	2-17	2-11
	Power connections	2-18	2-12
IV.	Signal connections		
	General	2-19	2-14
	Connecting 26-pair cables	2-20	2-15
	Connecting field wire	2-21	2-16
	Connecting J-1077/U	2-22	2-16
CHAPTER 3.	OPERATING INSTRUCTIONS		
	Controls and instruments	3-1	3-1
	Energizing ac circuits	3-2	3-2
	Operating heaters and air conditioner	3-3	3-3
	Patching	3-4	3-3
	Operations under adverse climatic conditions	3-5	3-3
	Stopping procedure	3-6	3-6
CHAPTER 4.	MAINTENANCE		
Section I.	Operator's and organizational maintenance		
	Scope of operator's and organizational maintenance	4-1	4-1
	Operator's daily preventive maintenance checks and services	4-2	4-1

		Paragraph	Page
CHAPTER 4.	MAINTENANCE—Continued		
Section I.	Operator's and organizational maintenance—Continued		
	Organizational monthly preventive checks and services	4-3	4-3
	Organizational quarterly preventive maintenance checks and services	4-4	4-4
	Troubleshooting	4-5	4-6
	Heater repairs and blower replacement	4-6	4-7
	Power distribution panel repair	4-7	4-9
	Replacement of switches	4-8	4-11
	Fluorescent light fixture repair	4-9	4-13
	Replacement of power connectors and receptacles	4-10	4-13
II.	Direct support, general support, and depot maintenance		
	Scope of direct and general support maintenance	4-11	4-13
	Replacement of signal 2 through 5 signal entrance box receptacles	4-12	4-13
	Replacement of 26-pair cable connectors	4-13	4-13
	Depot maintenance	4-14	4-15
CHAPTER 5.	SHIPMENT, LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE		
Section I.	Shipment and limited storage		
	Disassembly of equipment	5-1	5-1
	Repackaging for shipment or limited storage	5-2	5-1
II.	Demolition to prevent enemy use		
	Authority for demolition	5-3	5-2
	Methods of destruction	5-4	5-2
	Destruction of spare parts	5-5	5-2
	Reporting equipment destruction	5-6	5-2
APPENDIX A.	REFERENCES		A-1
B.	BASIC ISSUE ITEMS LIST		B-1
C.	MAINTENANCE ALLOCATION		C-1
D.	ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST		D-1

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual describes Central Office, Teletypewriter AN/MGC-9A (fig. 1-1) and covers its installation, operation, functioning, maintenance, and troubleshooting. It also includes instructions for installation of components not provided as a part of Central Office, Teletypewriter AN/MGC-9A. Except for the AN/MGC-9A and its components, major components of the AN/MGC-9A are covered in detail in their respective technical manuals (app. A). Tools and test equipment required to perform installation and maintenance are listed in appendix C.

1-2. Indexes of Publications

a. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. Refer to the latest issue of DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army), NAVSUP Pub 378 (Navy), AFR 71-4 (Air Force), and MCO P4030.29 (Marine Corps).

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38 (Army), NAVSUP Pub 459 (Navy), AFM 75-34 (Air Force), and MCO P4610.19 (Marine Corps).

d. Reporting of Equipment Publication Improvements. The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AD, Fort Monmouth, N.J. 07703.

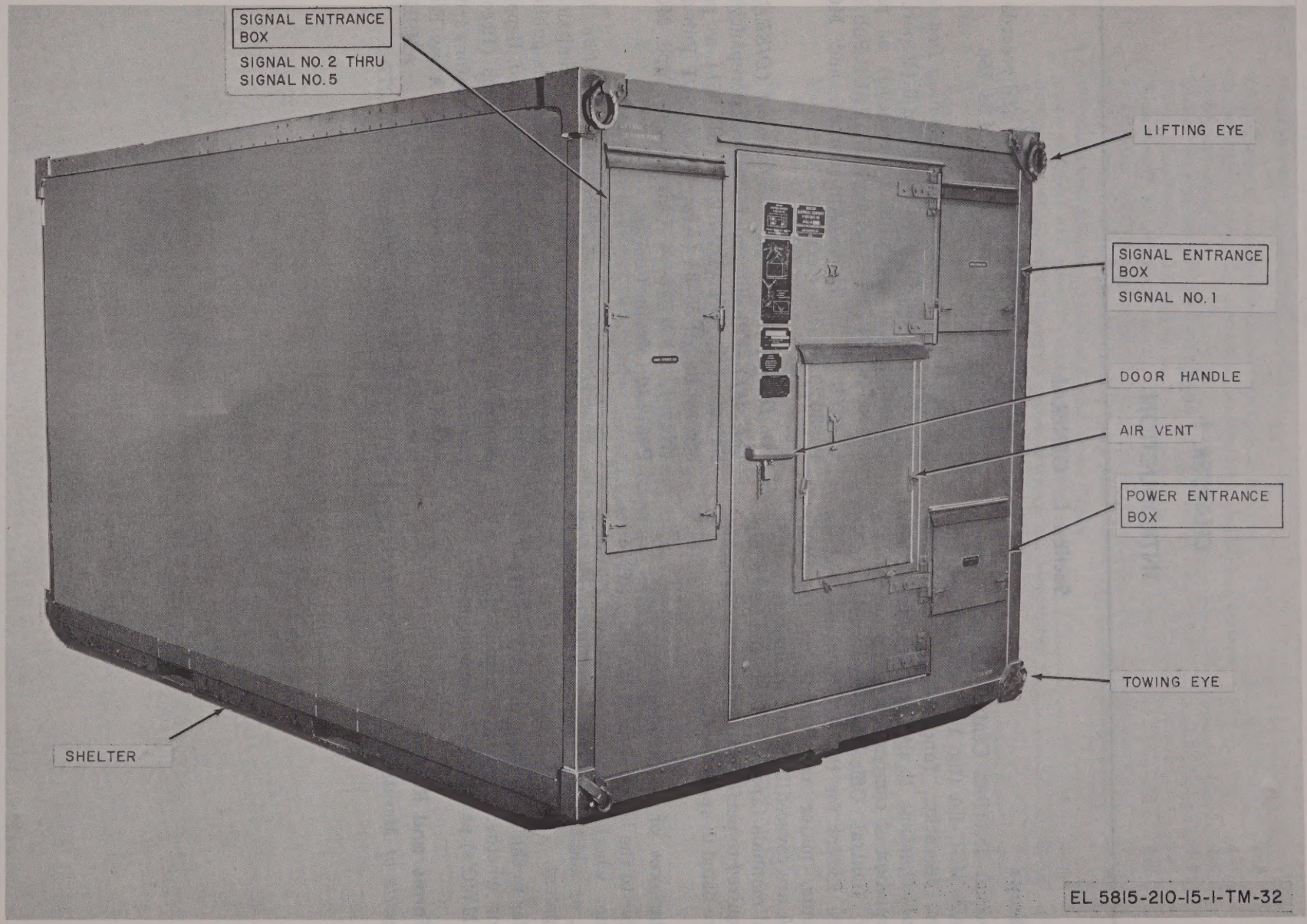


Figure 1–1. Central Office, teletypewriter AN/MGC–9A, exterior view.

Section II. DESCRIPTION AND DATA

1-4. Purpose and Use

Central Office, Teletypewriter AN/MGC-9A, is an air-or vehicular-transportable assemblage used to provide switching facilities in an area-type communications system. The AN/MGC-9A provides facilities to interconnect or terminate 120 voice-frequency (VF) teletypewriter circuits. The AN/MGC-9A may also be used as an alternate telephone switching central. Separate facilities are provided for intershelter communication within the signal area. Alternating-current (ac) power may be obtained from Generator Set, Gasoline Engine, Trailer Mounted PU-294/G, commercial power facilities, or a central power source (such as Trailer- or Truck-Mounted Diesel Engine Generator Sets PU-407/M or PU-408/M).

1-5. Technical Characteristics

The technical characteristics of the AN/MGC-9A are listed below. For technical characteristics of individual components that make up the AN/MGC-9A, refer to the applicable publication for the individual component (app. A).

Power requirements ---------- 115V, 60 cps, single phase, 3 wire, 55 amperes

Power consumption (maximum):

AN/MGC-9A Components:

Lights	400 watts
Exhaust blower	300 watts
Electric heaters	3,000 watts
Air conditioner	1,600 watts
Intercommunication Station LS-14D/FI	32 watts

Major Components:

Terminal Telegraph TH-22/TG	20 watts
Teletypewriter TT-98/G	150 watts
Converter Telegraph-Telephone Signal CV-425/U	25 watts
Total	5527 watts

Intra-area communications facilities:

Local telephone circuit	TA-312/PT
Intercommunication circuit	LS-147D/FI

Weight:

AN/MGC-9A	3,054 lbs
PU-294/G	5,000 lbs
S-368/MSC	1,500 lbs

Dimensions (outside):

Length	175 in.
Width	87 in.
Height	83 in.

1-6. Table of Components

The basic items issue list (app. B) lists the components that comprise the AN/MGC-9A.

1-7. Description

The AN/MGC-9A is a Teletypewriter, Central Office facility contained in Shelter, Electrical Equipment S-368/MGC-9A. The equipment arrangement inside the shelter facility is shown in figures 1-2 through 1-4. Patch cords are shown in figure 1-4. Tools, accessories, running spares, cable assemblies, and reels are shown in figures 1-5 through 1-7.

a. Power and Signal Connections (fig. 1-1). Power is applied to the AN/MGC-9A through the POWER ENTRANCE BOX. All local circuit (field wire) connections are connected to the SIGNAL 1 SIGNAL ENTRANCE BOX. All signal connections (26-pair cable) are connected to the SIGNAL 2 through SIGNAL 5 SIGNAL ENTRANCE BOX.

b. Equipment. Those components of the AN/MGC-9A that are not covered in separate technical manuals are illustrated in figures 1-2, 1-3, 1-4, 1-5, 1-6, and 1-7. For descriptions and illustrations of the other components, refer to appendix A.

1-8. Nomenclature and Common Names

The following is a list of components to which common names are assigned:

Cable Assembly, Telephone CX-4566/G (250 ft)	26-pair cable
Connector, Plug, Electrical U-185B/G (p/o CX-4566/G)	26-pair connector
Connector, Receptacle, Electrical U-187A/G (p/o power entrance box and connector signal entrance boxes)	26-pair receptacle
Shelter, Electrical Equipment S-368/MSC	Shelter

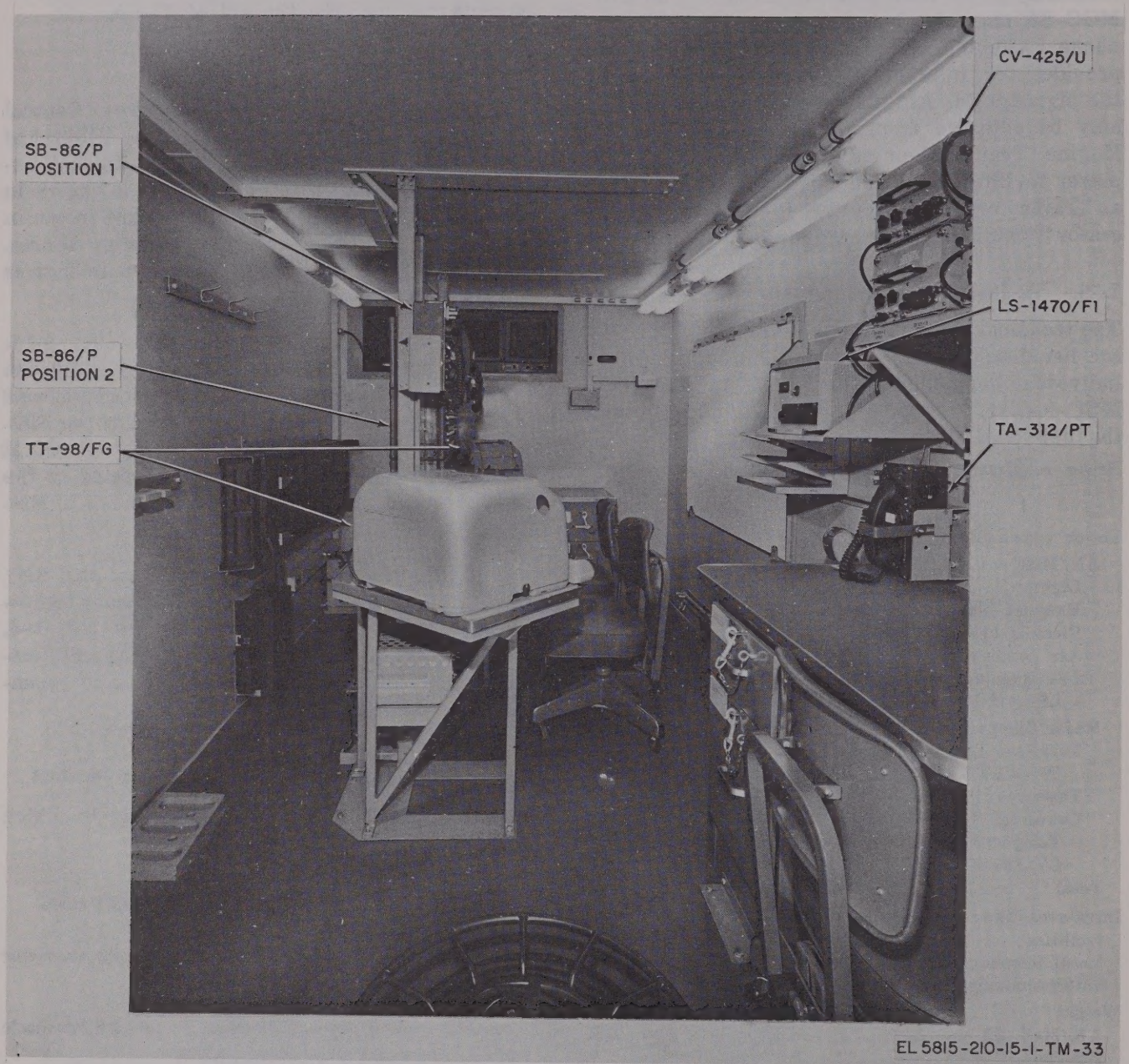


Figure 1-2. Central office, teletypewriter AN/MGC-9A front wall, interior view.

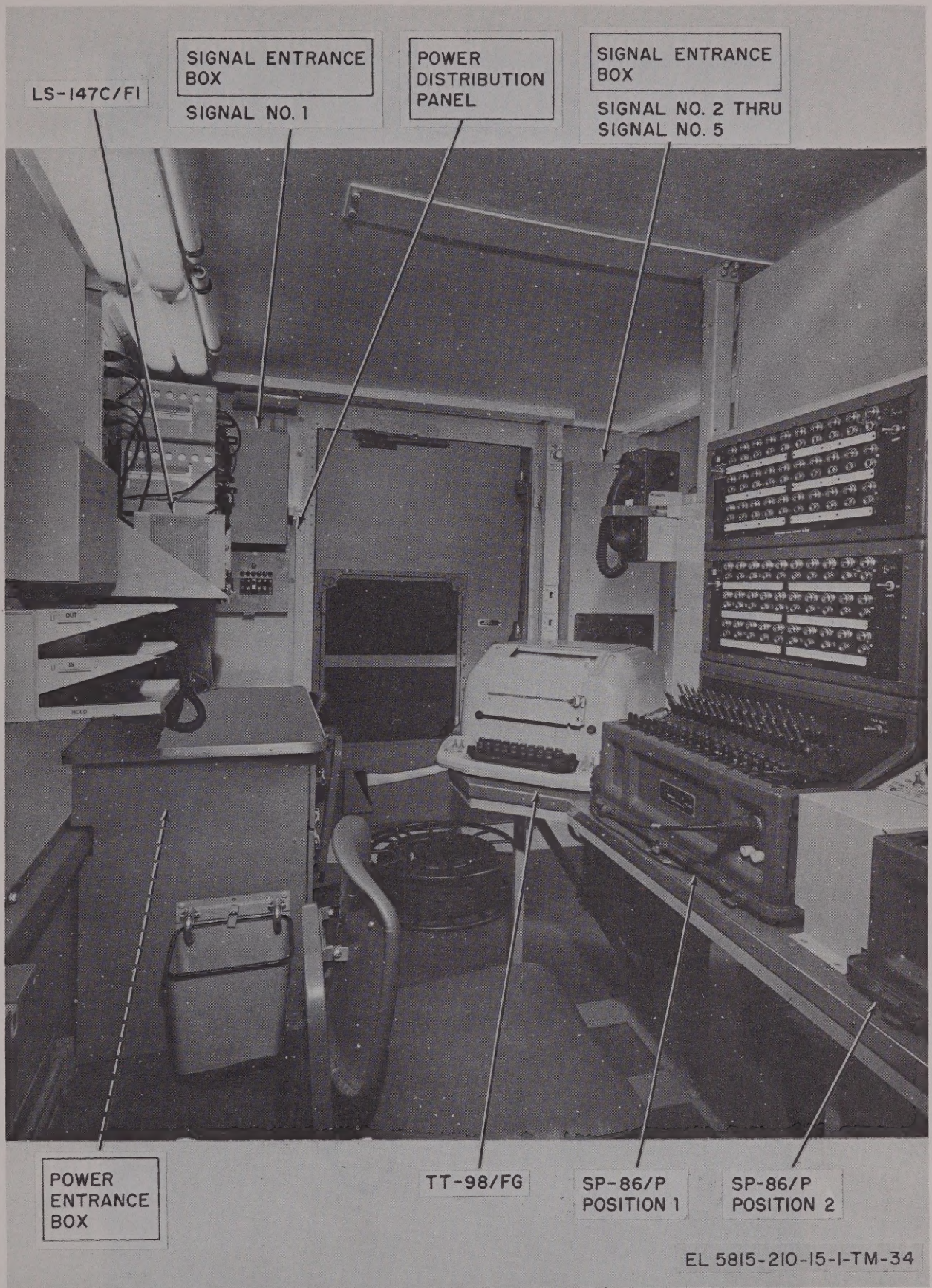


Figure 1–3. Central office, teletypewriter AN/MGC–9A entrance wall, interior view.

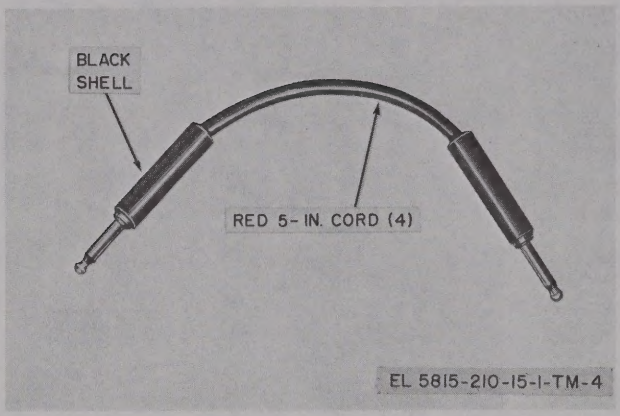


Figure 1-4. Patch cords.

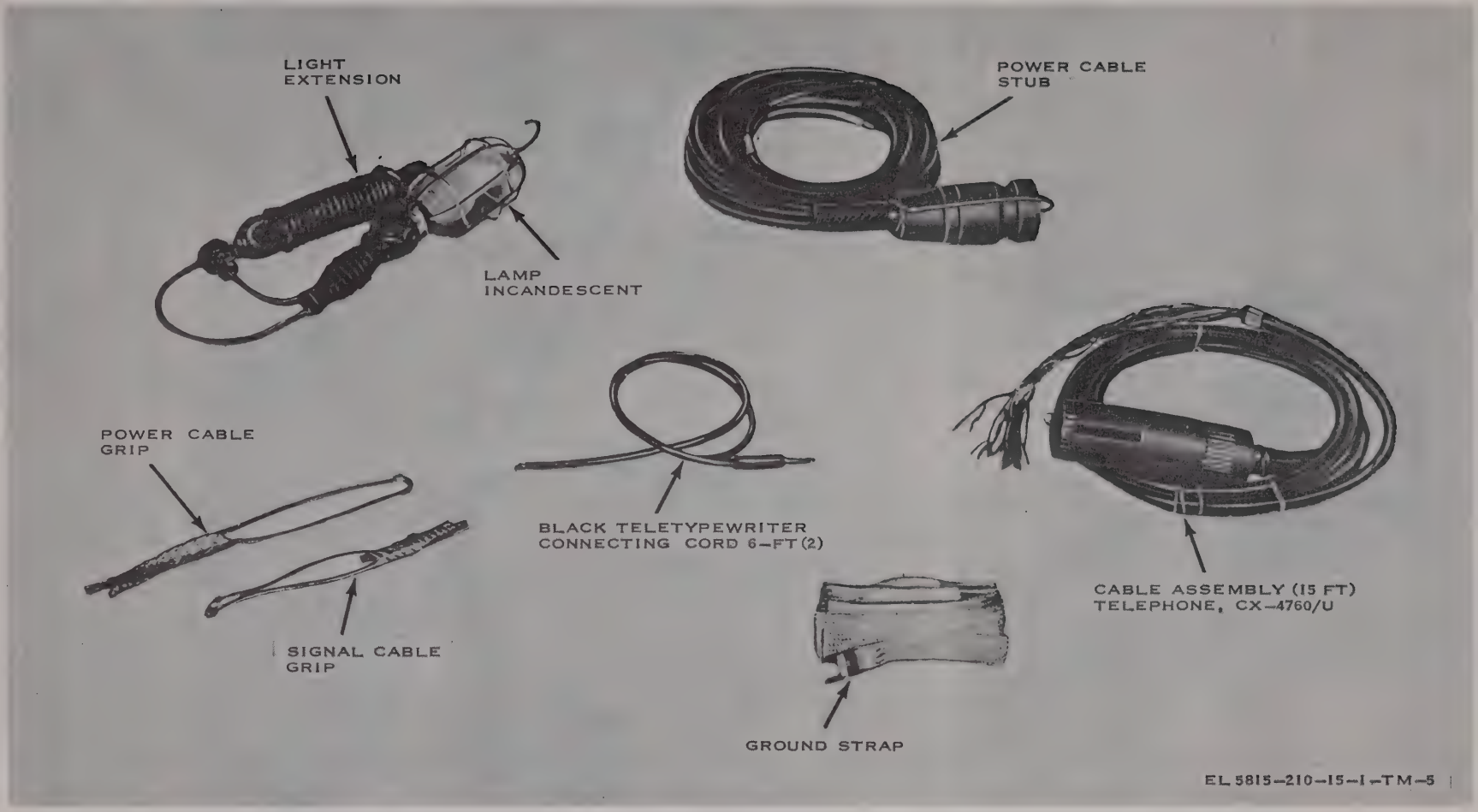


Figure 1–5. Tools and accessories.

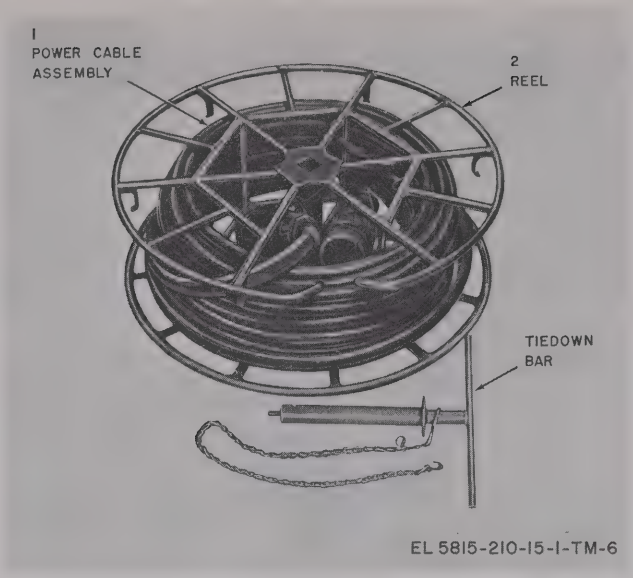


Figure 1–6. Cable assembly and reel.

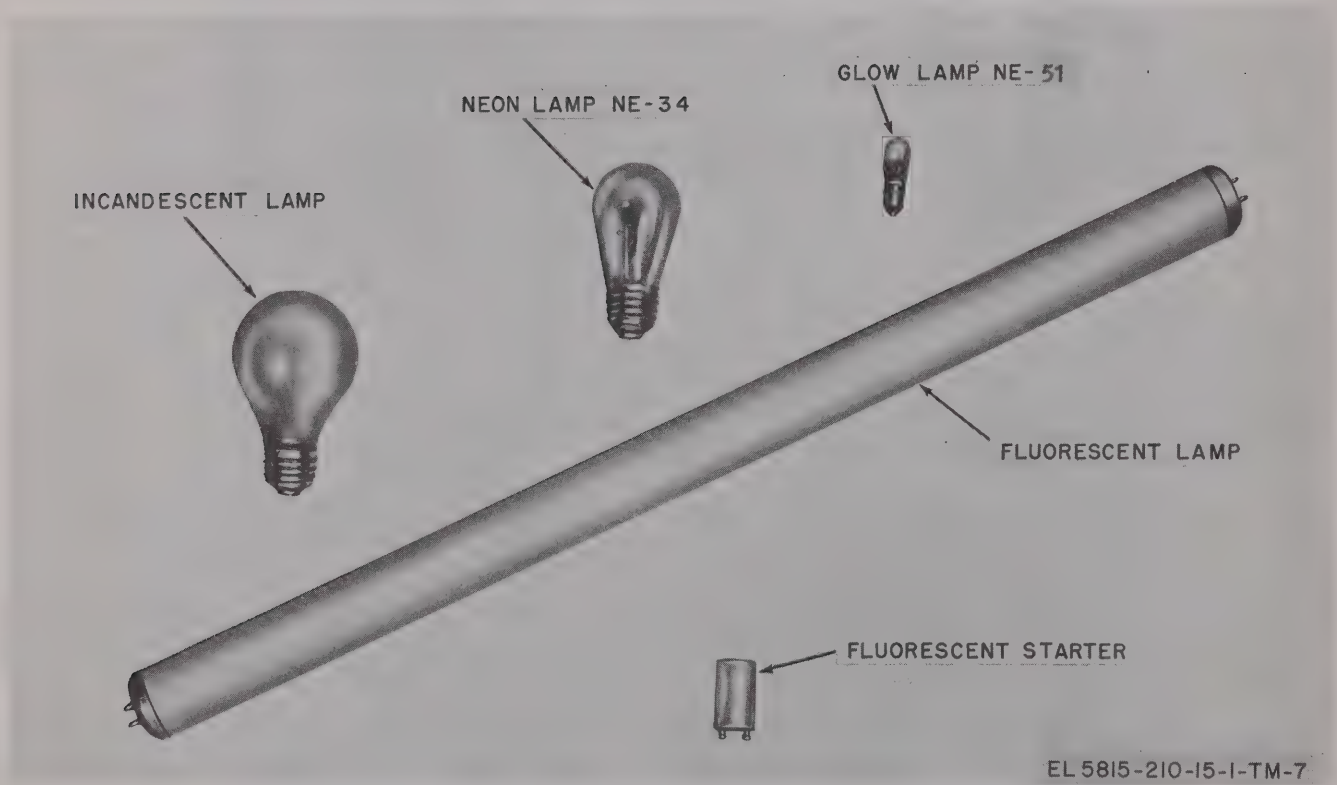


Figure 1–7. Running spares.

CHAPTER 2

INSTALLATION

Section I. INSTALLATION OF EQUIPMENT

2–1. General

When the AN/MGC–9A is received, refer to *a* through *f* for the order of equipment installation and the applicable paragraph references.

a. Unpack and check the equipment (para 2–2 and 2–3).

b. Install the SB–86/P (para 2–4).

c. Install the TH–22/TG (para 2–5).

d. Install the TT–98/FG (para 2–6).

e. Install the TA–312/PT (para 2–7).

f. Install the CV–425/U (para 2–8).

2–2. Unpacking and Checking

a. Packaging Data (fig. 2–1). For shipment, the AN/MGC–9A is packed in a reusable crate. The AN/MGC–9A is anchored to eyebolts in the skid base of the crate and blocked at the sides and ends with lumber. The skid base has side entries for handling with a forklift. The dimensions of the crate are 185½ by 96 by 97½ inches, the volume is 992 cubic feet and the weight is approximately 1270 pounds.

b. Removal from Crate (fig. 2–1).

(1) Unfasten the lag screws with wrenches and remove the top, end and side panels from the crate base.

(2) Detach the sling tiedown from the eyebolts in the crate base.

(3) Remove the wood blocking from the ends and sides of the shelter.

CAUTION

Be careful when handling tools, because the aluminum skin of the shelter can be easily damaged.

(4) Remove the shelter from the crate base. Use overhead lifting equipment whenever available. If overhead lifting equipment is not available, remove the headers from the crate base, and drag the shelter from the crate base by the towing eyes. A forklift may be used at either end of the shelter to lift it from the crate base if the prongs of the forklift are carefully inserted between the shelter and the crate base. If a forklift is used, be extremely careful because the skin of the shelter may be easily damaged by the prongs of the forklift.

(5) Forward the crate (reassembled or with the sections tied together) to a local storage area, if practicable. The crate may be reused for shipment of similar items.

c. Removing Contents.

(1) Unlock and open the door.

(2) Unscrew the reel retainer and remove the power cable assembly and reel.

(3) Remove all stored components from the aisle.

2–3. Checking Unpacked Equipment

a. Inspect the equipment for damage that may have occurred during shipment. If the equipment has been damaged, fill out and forward DD Form 6 (para 1–3*b*).

b. Check to see that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against the basic issue items list (app. B). Report all discrepancies in accordance with TM 38–750. The equipment should be placed in service even though a minor assembly or part, that does not affect proper functioning, is missing.

c. Check to see whether the equipment has been modified. If the equipment has been modified, the MWO number will appear on the front panel near the nomenclature plate. Check also to see whether all MWO's current at the time the equipment is placed in use have been applied.

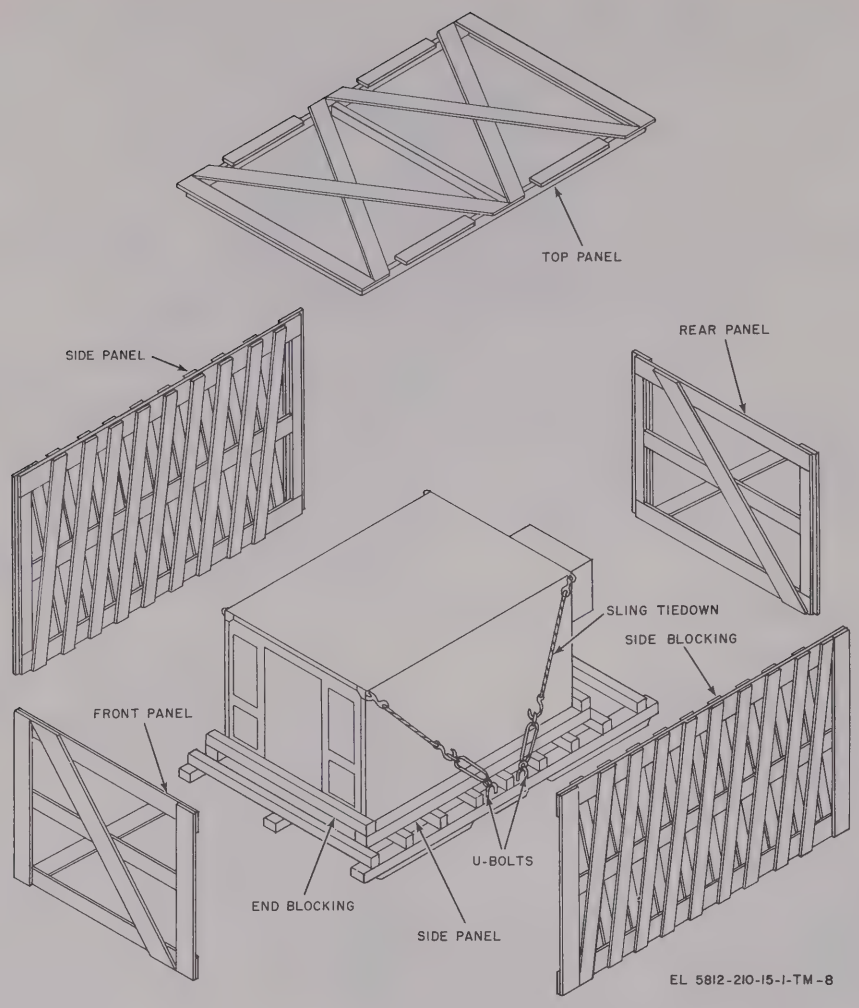


Figure 2–1. Typical packaging diagram.

NOTE

Current MWO's applicable to the equipment are listed in DA Pam 310–7.

d. Check the latest issue of DA Pam 310–4 (never more than 1 year old) and its latest changes (never more than 6 months old) to see whether you have the latest editions of all applicable maintenance literature.

NOTE

Equipment issued by depots may have been in stock for some time and may contain superseded manuals.

Section II. INSTALLATION INSTRUCTIONS

2–4. Installation of SB–86/P

a. Remove components from their carrying cases (TM 11–2134).

b. Remove wingnuts located beneath the table top and remove the retaining bars.

c. Remove the top framework located beneath the traffic panel assemblies.

d. Position one SB–248/P at POSITION NO. 1 on the tabletop; place the retaining bars (two in front, two in back, and one on each side) over the lashing hooks on the SB–248/P base and through the holes on the tabletop.

e. Replace and tighten the wingnuts.

f. Place two TA–207/P's on top of the SB–248/P and secure them in place (TM 11–2134).

g. Repeat steps *d* through *f* above for the POSITION NO. 2.

h. Replace the top framework bar over the TA–207/P's and secure it in place.

i. Fasten a log plate to the bracket beside each SB–86/P with the two bolts provided.

j. Place a Power Supply, PP–990/G, beneath each operating position, insert the two lock rods from the carrying case and secure the PP–990/G in place.

2–5. Installation of TH–22/TG

a. Release the snap catches on the case and open the cover assembly.

b. Release the captive screws on the front panel and remove the chassis from its case.

c. Position the TH–22/G chassis in the applicable shelter mounting (fig. 5–1) and fasten the captive screws.

d. Insert the TH–22/G power cord into one of the receptacles, top or bottom, of the switchbox assembly console between position 1 and position 2 of the SB–86/P's.

e. Remove the spare fuses from the cover assembly and place them in a storage drawer. Store the case.

2–6. Installation of TT–98/FG

a. Remove the wingnuts and the hold down bars from the table top.

b. Position the TT–98/FG on the table top.

c. Using the mounting hardware and tiedown straps, mount the TT–98/FG to the table top.

d. Replace and tighten the wingnuts.

e. Fasten the web straps over the top of the TT–98/FG.

2–7. Installation of TA–312/PT

Place one TA–312/PT (with carrying case) in a storage drawer and install the remaining two telephones at POSITION NO. 1 and NO. 2 as follows:

a. Remove the cover. Loosen the wingnut on the side of the mounting bracket, and open the clamp. Store the cover.

b. Use a screwdriver to remove the flathead screw and the holding plate (inside the mounting bracket).

c. Insert the holding plate into the buzzer recess on the side of the TA–312/PT.

d. Remove the handset bracket from the TA–312/PT mounting bracket by loosening the wingnut and sliding handset bracket forward.

e. Place the TA–312/PT into the mounting bracket and replace the flathead screw.

f. Remove the handset from the TA–312/PT by pulling the handset forward.

g. Open battery compartment cover on the front of the TA–312/PT.

h. Insert two batteries, BA–30, into the TA–312/PT, per instructions on the inside of the battery compartment cover. Close battery compartment cover.

i. Replace the handset on the TA–312/PT and hold the handset in place by securing the handset bracket of the TA–312/PT mounting bracket over the handset.

j. Place the battery switch on the TA–312/PT to INT or EXT position as required.

k. Place the LB-CB-CBS switch to the required position.

l. Adjust the LOW-LOUD control to the desired position.

m. Connect the prepared leads of the telephone cable to the LINE binding posts on each TA–312/PT as follows: gray—1 violet wire on top terminal, and gray—2 violet wire on bottom terminal.

2–8. Installation of CV–425/U

a. Release the snap catch on the case and open the cover.

b. Remove the spare fuses from the covers and store them in the number one drawer.

c. Remove the CV–425/U from its case and store the case.

d. Place the CV–425/U into the racks provided and fasten the quick-release screws (fig. 5–1).

e. Plug power cords into the equipment receptacles so labeled.

f. Connect harness W–11 to binding posts of CV–425/U, per marking on wires, as follows:

NOTE

In the chart below, the numbers 1 and 2 followed by a color, indicate the number of color bands (1 or 2) imprinted on the base color of the wire; i.e., red—1 white, red—2 white, etc.

CV–425/U No.	Binding post and wire No.	Wire color
1	1	Orange—1 White
	2	Orange—2 White
	5	Green —1 White
	6	Green —2 White
2	1	Brown —1 White
	2	Brown —2 White
	5	Orange—1 Red
	6	Orange—2 Red
3	1	Green —1 Red
	2	Green —2 Red
	5	Brown —1 Red
	6	Brown —2 Red
4	1	Gray —1 Red
	2	Gray —2 Red
	5	Gray —1 Violet
	6	Gray —2 Violet

2–9. Connection of SB–86/P

a. Install and connect batteries in each SB–86/P (TM 11–2134).

b. Remove wire harnesses W–23 (2 ea) and W–16 (1 ea) from desk drawer No. 1.

c. At operating positions No. 1 and No. 2, connect wire harness W–16 to the binding posts of the upper and lower TA–207/P and the SB–248/P as follows:

(1) Using the GREEN wires interconnect the EARTH/GND binding posts of the upper and lower TA–207/P, the SB–248/P, and the wire mold GND stud.

(2) Using the WHITE wires interconnect the —24 V binding posts of the upper and lower TA–207/P and the SB–248/P.

(3) Using the BLACK wires interconnect the +24 V binding posts of the upper and lower TA–207/P and the SB–248/P.

d. Using wire harness W–23, interconnect the SB–248/P and the PP–990/G (power supply) at operating positions No. 1 and No. 2 as follows:

Wire color	*Terminal connections* SB–248/P	PP–990/G
BRN	EXT GEN	RING SUP
GRN	ST VIB	ST VIB
RED	24 V (+)	24 V (+)
WHT	EXT GEN	RING SUP
BLK	24 V (−)	24 V (−)

e. The cables from the signal duct are designated POSITION NO. 1 and POSITION NO. 2. Their length and markers determine whether they are connected to the upper or lower TA–207/P. Make the connections per nameplate above position 2 switchboard.

NOTE

In the charts below, the numbers 1 and 2 followed by a color indicate the number of color bands (1 or 2) imprinted on the base color of the wire; i.e., red—1 white, gray—2 violet, etc.

(1) POSITION NO. 1, lower TA–207/P.

Cable No.	*Wire colors*	*Binding post pair*
W1	BLU — 1 WHT, BLU — 2 WHT	1
W1	ORN — 1 WHT, ORN — 2 WHT	2
W1	GRN — 1 WHT, GRN — 2 WHT	3
W1	BRN — 1 WHT, BRN — 2 WHT	4
W1	GY — 1 WHT, BY — 2 WHT	5
W1	BLU — 1 RED, BLU — 2 RED	6
W1	ORN — 1 RED, ORN — 2 RED	7
W1	GRN — 1 RED, GRN — 2 RED	8
W1	BRN — 1 RED, BRN — 2 RED	9
W1	GY — 1 RED, GY — 2 RED	10
W1	BLU — 1 BLK, BLU — 2 BLK	11
W1	ORN — 1 BLK, ORN — 2 BLK	12
W2	GRN — 1 BLK, GRN — 2 BLK	13
W2	BRN — 1 BLK, BRN — 2 BLK	14
W2	GY — 1 BLK, GY — 2 BLK	15
W2	BLU — 1 YEL, BLU — 2 YEL	16
W2	ORN — 1 YEL, ORN — 2 YEL	17
W2	GRN — 1 YEL, GRN — 2 YEL	18
W2	BRN — 1 YEL, BRN — 2 YEL	19
W2	GY — 1 YEL, GY — 2 YEL	20
W2	BLU — 1 VIO, BLU — 2 VIO	21
W2	ORN — 1 VIO, ORN —2 VIO	22
W22	BLU — 1 WHT, BLU — 2 WHT	23
W22	ORN — 1 WHT, ORN — 2 WHT	24
W3	BLU — 1 WHT, BLU — 2 WHT	25
W3	ORN — 1 WHT, ORN — 2 WHT	26
W3	GRN — 1 WHT, GRN — 2 WHT	27
W3	BRN — 1 WHT, BRN — 2 WHT	28
W3	GY — 1 WHT, GY — 2 WHT	29
W3	BLU — 1 RED, BLU — 2 RED	30

(2) POSITION NO. 1, upper TA–207/P.

Cable No.	*Wire colors*	*Binding post pair*
W3	ORN — 1 RED, ORN — 2 RED	1
W3	GRN — 1 RED, GRN — 2 RED	2
W3	BRN — 1 RED, BRN — 2 RED	3
W3	GY — 1 RED, GY — 2 RED	4
W3	BLU — 1 BLK, BLU — 2 BLK	5
W3	ORN — 1 BLK, ORN — 2 BLK	6
W4	GRN — 1 BLK, BRN — 2 BLK	7
W4	BRN — 1 BLK, BRN — 2 BLK	8
W4	GY — 1 BLK, GY — 2 BLK	9
W4	BLU — 1 YEL, BLU — 2 YEL	10
W4	ORN — 1 YEL, ORN — 2 YEL	11
W4	GRN — 1 YEL, GRN — 2 YEL	12
W4	BRN — 1 YEL, BRN — 2 YEL	13
W4	GY — 1 YEL, GY — 2 YEL	14
W4	BLU — 1 VIO, BLU — 2 VIO	15
W4	ORN — 1 VIO, ORN — 2 VIO	16
W22	GY — 1 WHT, GY — 2 WHT	17
W22	BLU — 1 RED, BLU — 2 RED	18
W5	BLU — 1 WHT, BLU —2 WHT	19
W5	ORN — 1 WHT, ORN — 2 WHT	20
W5	GRN — 1 WHT, GRN — 2 WHT	21
W5	BRN — 1 WHT, BRN — 2 WHT	22
W5	GY — 1 WHT, GY — 2 WHT	23
W5	BLU — 1 RED, BLU — 2 RED	24
W5	ORN — 1 RED, ORN — 2 RED	25
W5	GRN — 1 RED, GRN — 2 RED	26
W5	BRN — 1 RED, BRN — 2 RED	27
W5	GY — 1 RED, GY — 2 RED	28
W5	BLU — 1 BLK, BLU — 2 BLK	29
W5	ORN — 1 BLK, ORN — 2 BLK	30

(3) POSITION NO. 2, lower TA–207/P.

Cable No.	Wire color	Binding post pair
W1	GRN — 1 BLK, GRN — 2 BLK	1
W1	BRN — 1 BLK, BRN — 2 BLK	2
W1	GY — 1 BLK, GY — 2 BLK	3
W1	BLU — 1 YEL, BLU — 2 YEL	4
W1	ORN — 1 YEL, ORN — 2 YEL	5
W1	GRN — 1 YEL, GRN — 2 YEL	6
W1	BRN — 1 YEL, BRN — 2 YEL	7
W1	GY — 1 YEL, GY — 2 YEL	8
W1	BLU — 1 VIO, BLU — 2 VIO	9
W1	ORN — 1 VIO, ORN — 2 VIO	10
W1	GRN — 1 VIO, GRN — 2 VIO	11
W1	BRN — 1 VIO, BRN — 2 VIO	12
W2	BLU — 1 WHT, BLU — 2 WHT	13
W2	ORN — 1 WHT, ORN — 2 WHT	14
W2	GRN — 1 WHT, GRN — 2 WHT	15
W2	BRN — 1 WHT, BRN — 2 WHT	16
W2	GY — 1 WHT, GY — 2 WHT	17
W2	BLU — 1 RED, BLU — 2 RED	18
W2	ORN — 1 RED, ORN — 2 RED	19
W2	GRN — 1 RED, GRN — 2 RED	20
W2	BRN — 1 RED, BRN — 2 RED	21
W2	GY — 1 RED, GY — 2 RED	22
W2	BLU — 1 BLK, BLU — 2 BLK	23
W2	ORN — 1 BLK, ORN — 2 BLK	24
W3	GRN — 1 BLK, GRN — 2 BLK	25
W3	BRN — 1 BLK, BRN — 2 BLK	26
W3	GY — 1 BLK, GY — 2 BLK	27
W3	BLU — 1 YEL, BLU — 2 YEL	28
W3	ORN — 1 YEL, ORN — 2 YEL	29
W3	GRN — 1 YEL, GRN — 2 YEL	30

(4) POSITION NO. 2, upper TA–207/P.

Cable No.	Wire color	Binding post pair
W3	BRN — 1 YEL, BRN — 2 YEL	1
W3	GY — 1 YEL, GY — 2 YEL	2
W3	BLU — 1 VIO, BLU — 2 VIO	3
W3	ORN — 1 VIO, ORN — 2 VIO	4
W22	GRN — 1 WHT, GRN — 2 WHT	5
W22	BRN — 1 WHT, BRN — 2 WHT	6
W4	BLU — 1 WHT, BLU — 2 WHT	7
W4	ORN — 1 WHT, ORN — 2 WHT	8
W4	GRN — 1 WHT, GRN — 2 WHT	9
W4	BRN — 1 WHT, BRN — 2 WHT	10
W4	GY — 1 WHT, GY — 2 WHT	11
W4	BLU — 1 RED, BLU — 2 RED	12
W4	ORN — 1 RED, ORN — 2 RED	13
W4	GRN — 1 RED, GRN — 2 RED	14
W4	BRN — 1 RED, BRN — 1 RED	15
W4	GY — 1 RED, GY — 2 RED	16
W4	BLU — 1 BLK, BLU — 2 BLK	17
W4	ORN — 1 BLK, ORN — 2 BLK	18
W5	GRN — 1 BLK, GRN — 2 BLK	19
W5	BRN — 1 BLK, BRN — 2 BLK	20
W5	GY — 1 BLK, GY — 2 BLK	21
W5	BLU — 1 YEL, BLU — 2 YEL	22
W5	ORN — 1 YEL, ORN — 2 YEL	23
W5	GRN — 1 YEL, GRN — 2 YEL	24
W5	BRN — 1 YEL, BRN — 2 YEL	25
W5	GY — 1 YEL, GY — 2 YEL	26
W5	BLU — 1 VIO, BLU — 2 VIO	27
W5	ORN — 1 VIO, ORN — 2 VIO	28
W22	GRN — 1 RED, GRN — 2 RED	29
W22	GY — 1 VIO, GY — 2 VIO	30

f. Use a grease pencil to mark the identification of the circuits assigned to the drops on the TA–207/P's in the space provided.

2–10. Connection of TT–98/FG

a. Unfasten the web straps from the top of the TT–98/FG.

b. Loosen the thumblocks that hold the dust cover to the equipment and remove the cover.

c. Connect the send (black 48-inch) connecting cord to terminals 1 and 2 of the TT–98/FG terminal and switchbox assembly.

d. Connect the receive (black 36-inch) connecting card to terminals 3 and 4 of the TT–98/FG terminal and switchbox assembly.

e. Remove the shorting bar from terminals 2 and 3 of the terminal and switchbox assembly.

f. Place the TT–98/FG LINE SELECTOR switch to position 20 or 60, as appropriate.

g. Insert the power cord into the appropriate receptacle in the TT–98/FG and TH–22/TG switch panel (located between Position No. 1 and No. 2 switchboards). Use the top receptacles of the switch panel for Position No. 1 and the bottom receptacles for Position No. 2 equipments.

h. Place the POWER ON-OFF switch of the TT–98/FG to ON.

i. Replace and lock the dust cover. Fasten the web straps over the top of the TT–98/FG.

2–11. Installation of TA–312/PT

a. Remove the cover. Loosen the wingnut on the side of the mounting bracket, and open the clamp. Store the cover.

b. Use a screwdriver to remove the flathead screw and the holding plate (inside the mounting bracket).

c. Insert the holding plate into the buzzer risers on the side of the TA–312/PT.

d. Remove the handset from the TA–312/PT mounting bracket by loosening the wingnut and sliding handset forward.

e. Place the TA–312/PT into the mounting bracket at the required position (Position 1, Position 2, and/or desk or roadside wall). Replace the flathead screw.

f. Remove the handset from TA–312/PT by pulling the handset forward.

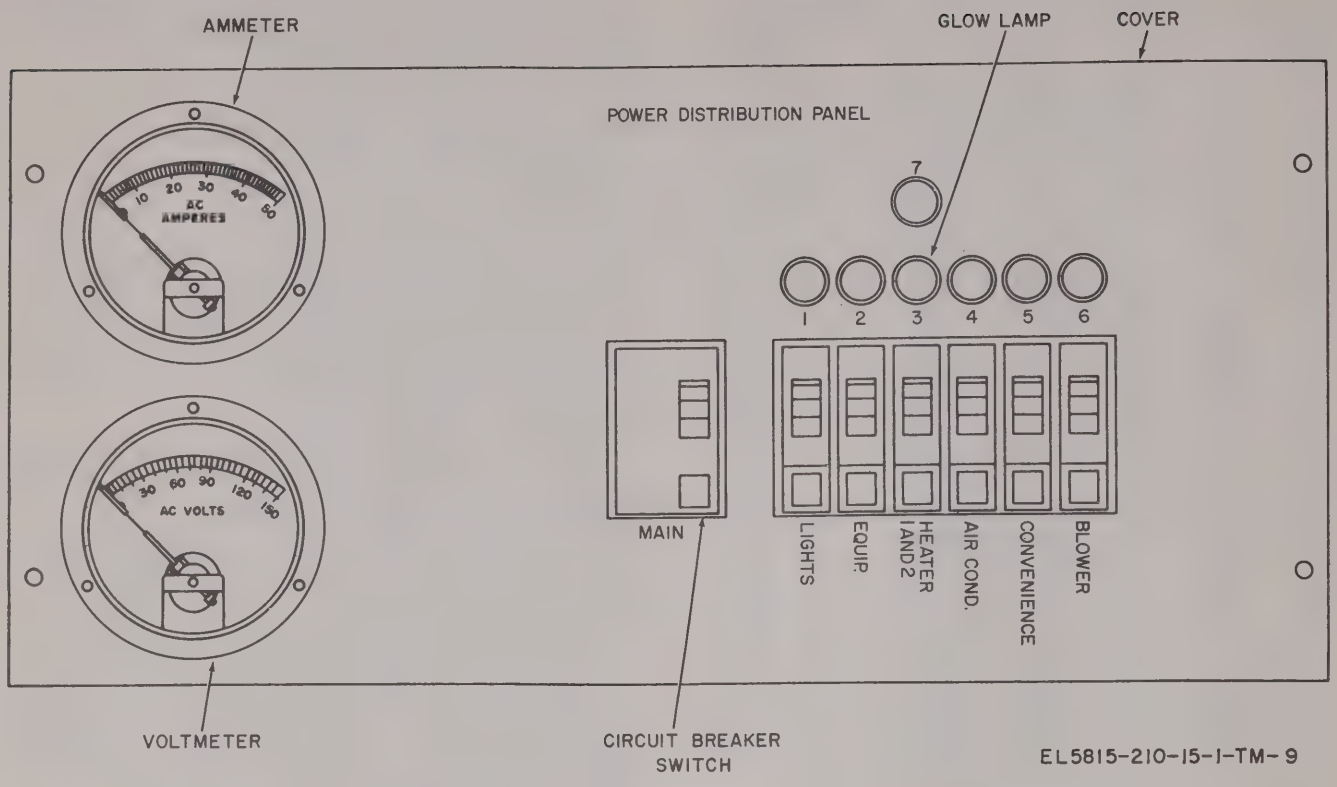


Figure 2–2. Power distribution panel.

g. Open battery compartment cover at the front of the TA–312/PT.

h. Insert (2) batteries, BA–30, into the TA–312/PT per instructions on the side of the battery compartment cover. Close battery compartment cover.

i. Replace the handset on the TA–312/PT and hold the handset in place by securing the handset of the TA–312/PT mounting bracket over the TA–312/PT handset.

j. Place the battery switch on the TA–312/PT to INT. or EXT. position as required.

k. Place the LB–CB–CBS switch to the required position.

l. Adjust the LOW-LOUD control to the desired position.

m. Connect the TA–312/PT, mounted over the roadside tabletop as follows:

n. Connect the prepared gray-violet leads of harness W–17 extending from the signal duct to the LINE binding posts of the TA–312/PT.

o. Connect the harness W–14 (gray-violet) wires clamped under the table of POSITION NO. 1 to the TA–312/PT LINE binding posts of POSITION NO. 1.

p. Connect the harness W–15 (gray-violet) wires clamped under the table of POSITION NO. 2 to the TA–312/PT LINE binding posts of POSITION NO. 2.

q. Connect the other end of harnesses W–14 to binding posts 3 and 5 of the POSITION NO. 1 TH–22/TG.

r. Connect the other end of harness W–15 to binding posts 3 and 5 of the POSITION NO. 2 TH–22/TG.

2–12. Checking the SB–86/P

a. Connect binding post pairs (in signal entrance boxes) associated with POSITION NO. 1 to the corresponding pair associated with POSITION NO. 2, as indicated in paragraph 2–19, using AWG 22 or AWG 24 wire pairs. *For example,* connect SIGNAL 3 pairs 1 through 6 to SIGNAL 3 pairs 15 through 18 and use SB–86/P jacks 25 through 30 at POSITION NO. 1 (lower TA–207/P) and at POSITION NO. 2 (lower TA–207/P) for testing.

b. Operate circuit breaker No. 2 (EQUIPMENT) on the power distribution panel to ON (fig. 2–2).

c. Perform ringing tests between SB–86/P at POSITION NO. 1 and SB–86/P at POSITION NO. 2.

d. Place the NORM-REC-SEND switch on each TH–22/TG to NORM.

e. Place screwdriver switch (4W–2W–TEL) on each TH–22/TG to the TEL position.

f. Place MODE 1—MODE 2 switch to MODE 1 position.

g. Place VF–20 screwdriver switch on each TH–22/TG to VF position.

h. Perform talking tests between the TA–312/PT's at POSITION NO. 1 and POSITION NO. 2.

(1) *Signal circuits test.*

(*a*) Operating positions No. 1 (nearest the door end of the shelter) and No. 2 (nearest the front end of the shelter) contain 1 each of the following equipments: Telegraph terminal TH–22/TG, Teletypewriter TT–98/FG, Telephone TA–312/PT, and Switchboard SB–86/P.

(*b*) Connect a pair of wires, 12 ft long, to the 2W–4WR binding posts on TH–22/TG, position 1.

(*c*) Connect a second pair of wires, 18 ft long, to the 2W–4WR binding posts on TH–22/TG, position 2.

(*d*) Connect pair No. 1 (*b* above) to SB–86/P(1) Lower TA–207/P Line 1 (E1) binding posts located in Signal 1 SIGNAL ENTRANCE BOX.

(*e*) Connect pair No. 2 (*c* above) to SB–86/P(1) Upper TA–207/P Line 1 (E59) binding posts located in Signal 3 SIGNAL ENTRANCE BOX.

(*f*) Lift the handset of TA–312/PT, position 1, and actuate ringer. Line signal No. 1 on lower TA–207 of SB–86/P shall turn from black to white and the panel lamps shall light.

(*g*) On SB–86/P, position 1, place the cord circuit switch of cord circuit No. 1 to the TALK LIST position.

NOTE

For the purpose of this procedure the cord circuits of both switchboards are numbered consecutively from left to right.

(*h*) Place the answer cord plug (in line with the cord circuit switch just moved—top cord) into line jack No. 1 (directly below the line signal indicating white). Line signal turns from white to black and panel lamps extinguish.

(*i*) Communication between switchboard operator and the operator of TA–312/PT, position 1, shall be loud and clear.

(*j*) Place the call cord plug of this cord circuit into line jack No. 1 on upper TA–207/P of SB–86/P.

(*k*) Place the ringing circuit switch to RING FWD. TA–312/PT, position 2, shall ring.

(*l*) Lift handset of TA–312/PT position 2. Communication between TA–312/PT, position 2, switchboard operator and TA–312/PT, position 1, shall be loud and clear.

(*m*) Place cord circuit switch of cord circuit No. 1 in neutral (handle straight up) position.

(*n*) Actuate ringers of both TA–312/PT telephones. Supervisory signals of the cord circuits being used shall turn from black to white.

(*o*) Pull the plugs of both cords from the line jacks and return them to their plug seats. Supervisory signals shall turn from white to black.

(*p*) Repeat steps (*d*) through (*o*) observing NOTE following step (*g*)) using signal lines and cord circuits listed below:

NOTE

At any convenient point during the tests, position the N.A. switches on switchboard SB–86/P, position 1, to AUD. Actuation of ringers on the TA–312/PT telephones shall cause the switchboard alarms to ring.

SB–86/P Lower TA–207/P Position 1	*SB–86/P Upper TA–207/P Position 1*	*Cord CKT*
Line 2 (E2)	Line 2 (E60)	2
Line 3 (E3)	Line 3 (E61)	3
Line 4 (E4)	Line 4 (E62)	4
Line 5 (E5)	Line 5 (E63)	5
Line 6 (E6)	Line 6 (E64)	6
Line 7 (E7)	Line 7 (E91)	7
Line 8 (E8)	Line 8 (E92)	8
Line 9 (E9)	Line 9 (E93)	9
Line 10 (E10)	Line 10 (E94)	10
Line 11 (E11)	Line 11 (E95)	11
Line 12 (E12)	Line 12 (E96)	12
Line 13 (E39)	Line 13 (E97)	13
Line 14 (E40)	Line 14 (E98)	14
Line 15 (E41)	Line 15 (E99)	15
Line 16 (E42)	Line 16 (E100)	16
Line 17 (E43)	Line 17 (E101)	any
Line 18 (E44)	Line 18 (E102)	any

SB-86/P Lower TA-207/P Position 1	*SB-86/P Upper TA-207/P Position 1*	*Cord CKT*
Line 19 (E45)	Line 19 (E105)	any
Line 20 (E46)	Line 20 (E106)	any
Line 21 (E47)	Line 21 (E107)	any
Line 22 (E48)	Line 22 (E108)	any
Line 23 (E49)	Line 23 (E109)	any
Line 24 (E50)	Line 24 (E110)	any
Line 25 (E53)	Line 25 (E111)	any
Line 26 (E54)	Line 26 (E112)	any
Line 27 (E55)	Line 27 (E113)	any
Line 28 (E56)	Line 28 (E114)	any
Line 29 (E57)	Line 29 (E115)	any
Line 30 (E58)	Line 30 (E116)	any

(*q*) Repeat steps (*b*) through (*p*) using switchboard SB-86/P, TA-312/PT and the signal lines and cord circuits tabulated below for position 2:

SB-86/P Lower TA-207/P Position 2	*SB-86/P Upper TA-207/P Position 2*	*Cord CKT*
Line 1 (E13)	Line 1 (E71)	1
Line 2 (E14)	Line 2 (E72)	2
Line 3 (E15)	Line 3 (E73)	3
Line 4 (E16)	Line 4 (E74)	4
Line 5 (E17)	Line 5 (E75)	5
Line 6 (E18)	Line 6 (E76)	6
Line 7 (E19)	Line 7 (E79)	7
Line 8 (E20)	Line 8 (E80)	8
Line 9 (E21)	Line 9 (E81)	9
Line 10 (E22)	Line 10 (E82)	10
Line 11 (E23)	Line 11 (E83)	11
Line 12 (E24)	Line 12 (E84)	12
Line 13 (E27)	Line 13 (E85)	13
Line 14 (E28)	Line 14 (E86)	14
Line 15 (E29)	Line 15 (E87)	15
Line 16 (E30)	Line 16 (E88)	16
Line 17 (E31)	Line 17 (E89)	any
Line 18 (E32)	Line 18 (E90)	any
Line 19 (E33)	Line 19 (E117)	any
Line 20 (E34)	Line 20 (E118)	any
Line 21 (E35)	Line 21 (E119)	any
Line 22 (E36)	Line 22 (E120)	any
Line 23 (E37)	Line 23 (E121)	any
Line 24 (E38)	Line 24 (E122)	any
Line 25 (E65)	Line 25 (E123)	any
Line 26 (E66)	Line 26 (E124)	any
Line 27 (E67)	Line 27 (E125)	any
Line 28 (E68)	Line 28 (E126)	any
Line 29 (E69)	Line 29 (E127)	any
Line 30 (E70)	Line 30 (E128)	any

(*r*) Turn 4W–2W–TEL screwdriver switch on each TH–22/TG to 2W.

(*s*) Turn VF–20 screwdriver switch on each TH–22/TG to 20.

(*t*) Position POWER and LIGHT switches on both teletypewriters to ON.

(*u*) Verify that pair No. 1 (step (*b*)) and pair No. 2 (step (*c*)) are still connected between the TH–22/TG's and binding posts SB–86/P lower TA–207/P line 30 and SB–86/P upper TA–207/P, line 30 of position 2.

(*v*) Depress the RING spring-return rotary switch on TH–22/TG, position 1. Line signal No. 30 on lower TA–207/P turns from black to white and the panel lamp lights.

(*w*) On SB–86/P, position 2, place the cord circuit switch of cord circuit No. 16 to the TALK LIST position.

(*x*) Place the answer cord plug (in line with the cord circuit switch just moved) into line jack No. 30. Line signal turns from white to black and panel lamps extinguish.

(*y*) Place the call cord plug of cord circuit No. 16 into line jack No. 30 on upper TA–207/P of SB–86/P, position 2.

(*z*) Place the ringing circuit switch to RING FWD. The TH–22/TG, position 2, shall ring.

(*aa*) On TT–98/FG, position 1, depress the repeat and P keys simultaneously. The TT–98/FG, position 2, shall copy without error the letter being transmitted by TT–98/FG, position 1. After two (2) complete lines have been typed, release the keys on TT–98/FG, position 1.

(*ab*) Repeat step (*aa*) using TT–98/FG, position 2, to transmit to TT–98/FG, position 1.

(*ac*) Turn the TP–TG switch on all four (4) CV–425/U's to TP.

(*ad*) Turn the 2W–4W switch on all four (4) CV–425/U's to 2W.

(*ae*) Place the SENSITIVITY switch on each CV–425/U to LOW. Place POWER switch to ON position on all four (4) CV–425/U units.

(*af*) Using the patch cords provided, make the following connections:

1. Connect CV–425/U No. 3 loop (J15) to SB–86/P No. 1. Upper TA–207/P line 18 (J18).

2. Connect CV–425/U No. 3 line (J17) to CV–425/U No. 4 line (J21).

3. Connect CV–425/U No. 4 loop (J19) to SB–86/P No. 2 upper TA–207/P line 29 (J20).

4. Connect CV–425/U No. 2 loop (J10) to SB–86/P No. 2 upper TA–207/P line 5 (J11).

5. Connect CV–425/U No. 2 line (J12) to CV–425/U No. 1 line (J8).

6. Connect CV–425/U No. 1 loop (J6) to SB–86/P No. 1 lower TA–207/P line 24 (J9).

(*ag*) Connect pair No. 1 (step *b*) to SB–86/P upper TA–207/P line 18 (E102), pair of binding posts located in the SIGNAL ENTRANCE BOX.

(*ah*) Connect pair No. 2 (step *c*) to SB–86/P lower TA–207 line 24 (E50) pair of

hinding posts located in SIGNAL ENTRANCE BOX.

(*ai*) Turn 4W–2W–TEL screwdriver switch on each TH–22/TG to TEL.

(*aj*) Turn VF–20 screwdriver switch on each TH–22/TG to VF.

(*ak*) Lift the handset of TA–312/PT, position 1, and actuate the ringer. Line signal No. 29 on upper TA–207/P of switchboard SB–86/P, position 2, shall turn from black to white and the panel lamps shall light.

(*al*) On switchboard SB–86/P, position 2, place the cord circuit switch of any cord circuit to TALK LIST.

(*am*) Place the answer cord plug of this cord circuit into line jack No. 29 of upper TA–207/P on switchboard SB–86/P, position 2. Line signal shall turn from white to black and panel lamps extinguish.

(*an*) Place the call plug of this circuit into the line jack No. 5 of the upper TA–207/P on Switchboard SB–86/P, position 2.

(*ao*) Place the ringing circuit switch to RING FWD. TA–312/PT, position 2, shall ring.

(*ap*) Lift the handset of TA–312/PT, position 2. Communication between switchboard operator and TA–312/PT, position 1, shall be loud and clear.

(*aq*) Restore both handsets to their cradles.

(*ar*) Place the cord circuit switch in the neutral (handle straight up) position.

(*as*) Actuate the ringers on both TA–312/PT telephones. Supervisory lamps of cord circuit being used shall turn from black to white.

(*at*) Pull the plugs of both cords from the line jacks and return them to their plug seats. White supervisory signals shall turn black.

(2) *Phone No. 1 and intercom test.*

(*a*) Does not apply.

(*b*) Connect pair No. 1 to PHONE binding posts located in POWER AND SIGNAL ENTRANCE BOX.

(*c*) Lift the handset on TA–312/PT, position 1, and actuate the ringer. Telephone at Wire Chiefs table shall ring.

(*d*) Lift the handset of the Wire Chief's telephone. Communication between phones shall be loud and clear.

(*e*) Repeat steps (*a*) through (*d*) for each pair of 25th binding posts located in the binding post signal entrance boxes identified as PHONE.

i. Continue the talking and ringing tests until the 60 lines in each of the SB–86/P's have been tested.

j. Remove all connections from signal entrance boxes.

2–13. Checking the TT–98/FG and TH–22/TG

a. Position the 4W–2W–TEL screwdriver switch on each TH–22/TG to 2W.

b. Turn VF–20 screwdriver switch on each TH–22/TG to 20.

c. Connect the SEND patchcord (48" black) to terminals 1 and 2 of TT–98/FG. Connect SEND plug into SEND jack of TH–22/TG.

d. Connect the RECEIVE patchcord (36" black) to terminals 3 and 4 of TT–98/FG. Connect RECEIVE plug into the RECEIVE jack of the TH–22/TG.

e. Position the POWER and LIGHT switches on both TT–98/FG's to ON.

f. Position the SEND-LOCK switch to SEND on each TT–98/FG.

g. Connect a pair of No. 24 AWG approx. wires approximately 15 feet long from SIGNAL 3 LINE 30 (E70) to TH–22/TG terminals 4 and 6 of POSITION 1 (fig. 5–3).

h. Connect a pair of No. 24 AWG approx. wires approximately 18 feet long from SIGNAL 5 LINE 30 (E128) to TH–22/TG terminals 4 and 6 of POSITION 2.

i. Depress the ring spring-return rotary switch on the TH–22/TG. POSITION NO. 1, LINE SIGNAL NO. 30 on lower TA–207/P turns black to white and the panel lamps light.

j. On SB–86/P, POSITION 2, place the cord circuit switch of cord circuit 16 to the TALK-LIST position.

k. Place the answer cord plug (in line with the cord circuit switch just moved) into line jack No. 30. Line signal turns from white to black and panel lights extinguish.

l. Place the call cord plug of cord circuit No. 16 into line jack No. 30 on upper TA–207/P of SB–86/P POSITION NO. 2.

m. Place the ringing circuit switch to RING FORWARD. The TH–22/TG POSITION NO. 2 shall ring.

n. On TT–98/FG POSITION NO. 1, type a test message from the keyboard. An error-free copy should be printed on POSITION 2 TT–98/FG.

o. On TT–98/FG POSITION NO. 2, type a test message from the keyboard. An error-free copy should be printed on POSITION NO. 1 TT–98/FG.

p. Place POWER and LIGHT switches on both TT-98/FG's to OFF.

2-14. Checking the TA-312/PT and TA-248/TT

a. Position the EQUIPMENT CIRCUIT BREAKER (No. 2) to ON on the POWER DISTRIBUTION PANEL (fig. 2-2).

b. Operate the TA-248/TT power switch (fig. 5-1) to ON.

c. Remove the gray-violet wires from the line terminals of the TA-312/PT at the desk on the roadside wall.

d. Connect a length of field wire from the line binding posts on the TA-312/PT to binding post line 1 (E13) in the SIGNAL NO. 1 ENTRANCE BOX (fig. 1-1).

e. Perform talking and ringing tests.

f. Repeat the procedures give in *d* and *e* above for binding posts, lines 2 through 12 (E14 through E24) in the SIGNAL NO. 1 ENTRANCE BOX.

Section III. INSTALLATION OF ASSEMBLAGE

2-15. Siting

a. The location of the AN/MCG-9A will depend on the tactical situation and local considerations. When installed on the ground, it should be located on firm, dry ground with good drainage. The site should be prepared and leveled. The assemblage should be placed on concrete blocks or wooden beams, if possible, and positioned to facilitate connection of power and signal cables. The assemblage can also be installed on a truck (para 2-16).

b. Avoid locations that require more than six cable lengths (1,500 feet) of 26-pair cable between the AN/MGC-9A and another assemblage. Excessive distance reduces the signal quality.

c. If the generator set is used to supply ac power to the assemblage, it should be located approximately 75 feet from the shelter to minimize fire hazard and generator noise interference.

2-16. Installing Assemblage

NOTE

To install the assemblage on the ground or on a truck, four men and a device capable of lifting 5,000 pounds are required.

a. Lifting and Loading Assemblage (fig. 2-3). To install the assemblage on a truck, follow the procedures given below:

(1) Use the sling center hooks (nearest the turnbuckles) to connect the sling assembly to the lifting eyes.

(2) Place the sling assembly on top of the assemblage.

(3) Connect the four sling hooks to the lifting ring.

(4) Place the lifting ring over the lifting hook of the lifting device.

WARNING

To avoid injury to personnel and damage to equipment, only the personnel engaged in the actual loading operation should be permitted near the truck, lifting device, and assemblage. To eliminate confusion, all instructions must come from the loading crew supervisor.

(5) Tie a ½-inch rope (at least 15 feet long) to each rear towing eye.

(6) Lower the truck tailgate and make sure that all tools and equipment have been removed from the truck body.

(7) Slowly lift the assemblage from the ground to a position high enough to clear the body of the truck.

(8) Back the truck into position under the assemblage.

WARNING

All personnel must remain clear of the truck while the assemblage is being lowered into position.

(9) Position a man at each of the ropes ((5) above) to guide the assemblage into position, and slowly lower it onto the truck body.

(10) Remove the lifting ring from the lifting hook and disassemble the lifting ring and sling hooks. Remove the sling center hooks from the lifting eyes and the ½-inch ropes from the rear towing eyes.

b. Securing Assemblage on Truck (fig. 2-4). To secure the assemblage on the truck body, proceed as follows:

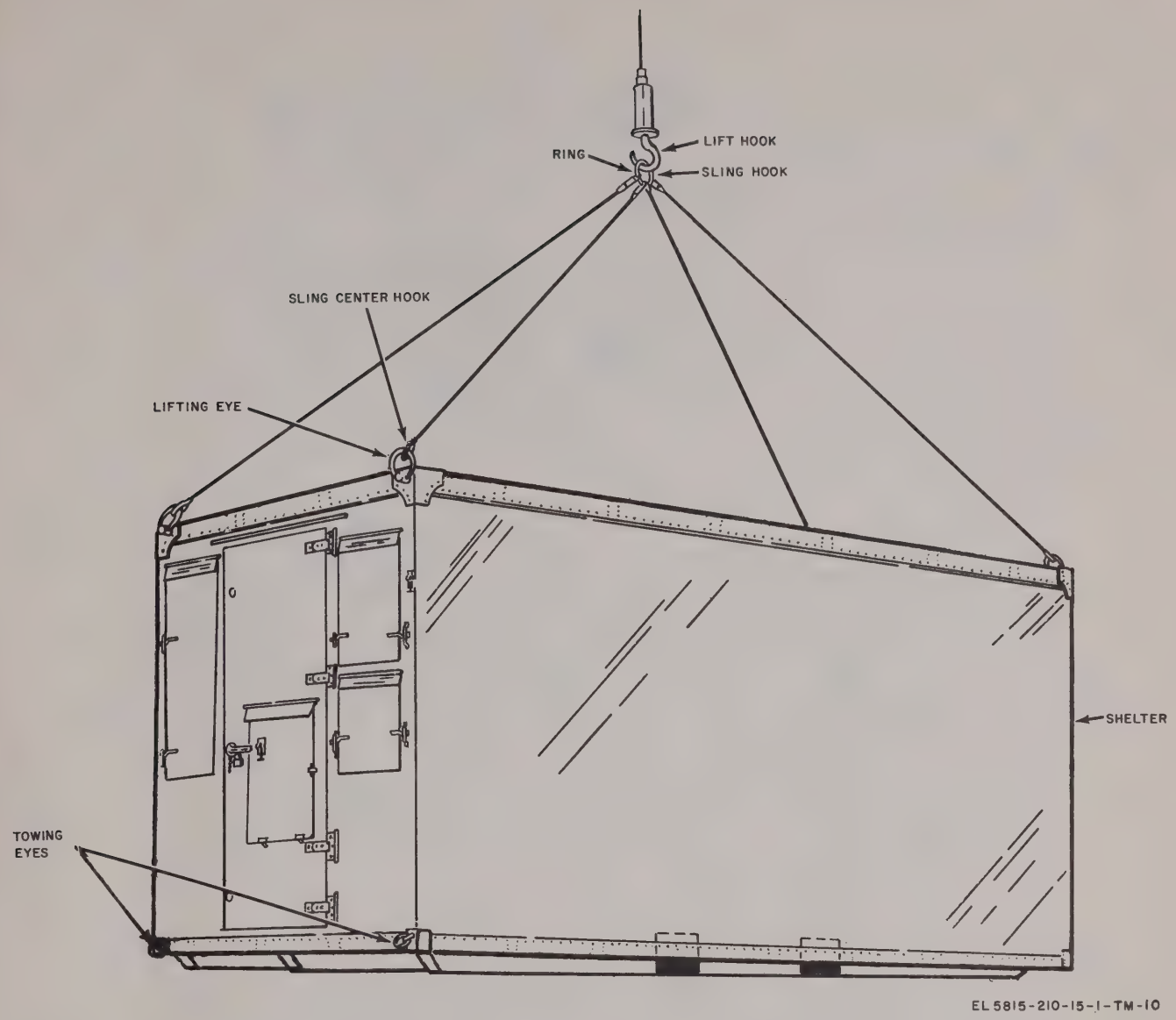


Figure 2–3. Hoisting assemblage.

(1) Install the tiedown ring assembly (A) (part of sling assembly) above the center support on the cargo bed side rail of the truck.

(2) Use the hook at the end farthest from the turnbuckle and hook each of the sling assemblies to a tiedown eye of the assemblage.

(3) Secure the sling hooks to the tiedown ring (B).

(4) Follow the procedures given in (1), (2), and (3) above to secure the other sides of the shelter.

(5) Tighten all turnbuckles evenly, by hand, then turn each turnbuckle an additional one-half turn with a bar or rod inserted in the turnbuckle slot.

CAUTION

Do not over tighten the turnbuckles. Overtightening turnbuckles will damage the AN/MGC–9A.

(6) Raise and secure the truck tailgate.

2–17. Grounding

The assemblage must be properly grounded before input power is connected. Select a grounding site that will not interfere with personnel movement with power and signal circuit cables. Ground the assemblage as follows:

a. Loosen the fasteners on the POWER ENTRANCE BOX, lift the cover and strengthen the stays.

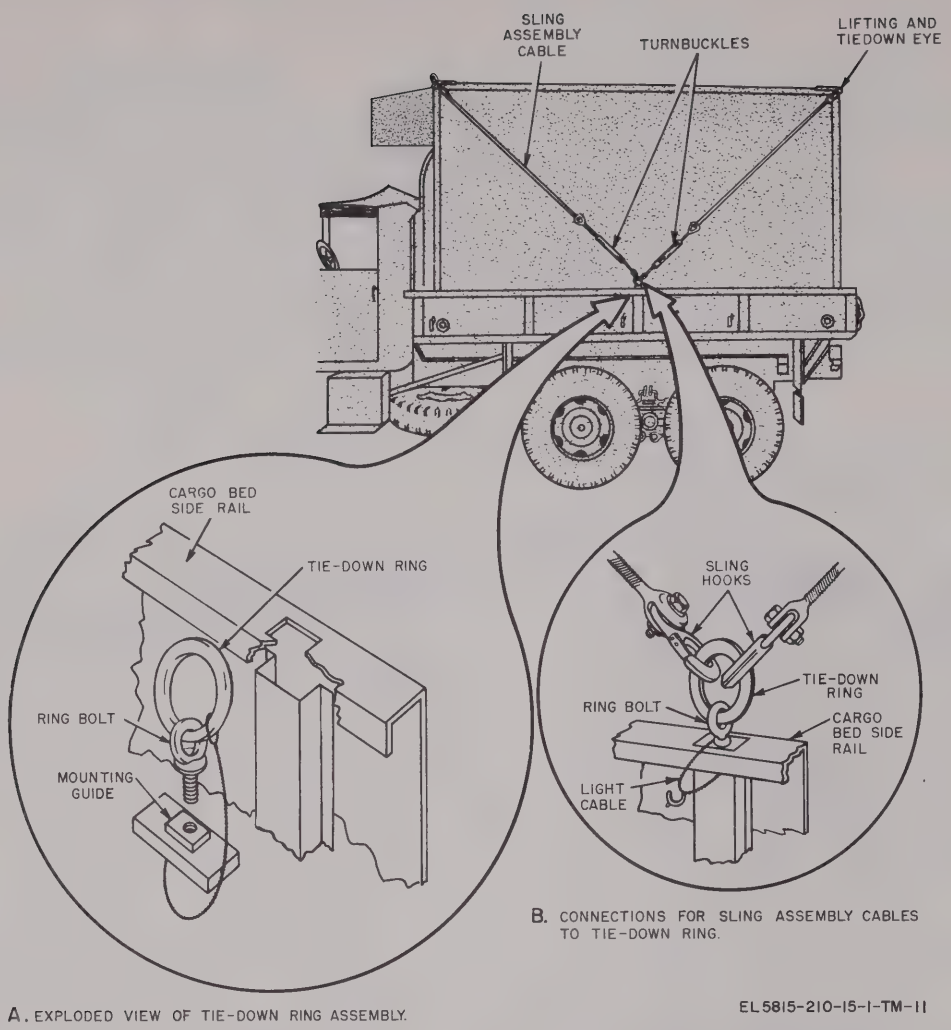


Figure 2–4. Tiedown ring assembly and sling assembly connection diagram, exploded view.

b. Fold the side flaps out from under the cover and hook them onto the retaining studs at each side of the POWER ENTRANCE BOX.

c. Remove ground rod and sledge hammer from their mountings (fig. 5–1).

d. If possible, select a grounding site within 8 feet of the POWER ENTRANCE BOX. Scoop out a small hole about 6 inches deep.

e. Drive a ground rod into the hole until the top of the rod is approximately 3 inches above the bottom of the hole.

f. Remove the ground lead from the storage drawer.

g. Connect one end of the ground lead to the ground rod and the other end to the GROUND TERMINAL (fig. 2–5) in the POWER ENTRANCE BOX.

h. If a generator set is used for supplying ac power, ground it in the same manner as the assemblage.

2–18. Power Connections

CAUTION

Grounding connections (para 2–17) must be completed before power is connected to AN/MGC–9A.

a. General. Power for the AN/MGC–9A is normally supplied through the POWER 115V AC IN receptacle on the POWER ENTRANCE BOX (fig. 2–5). The POWER 115V AC OUT receptacle is provided to supply power to another assemblage,

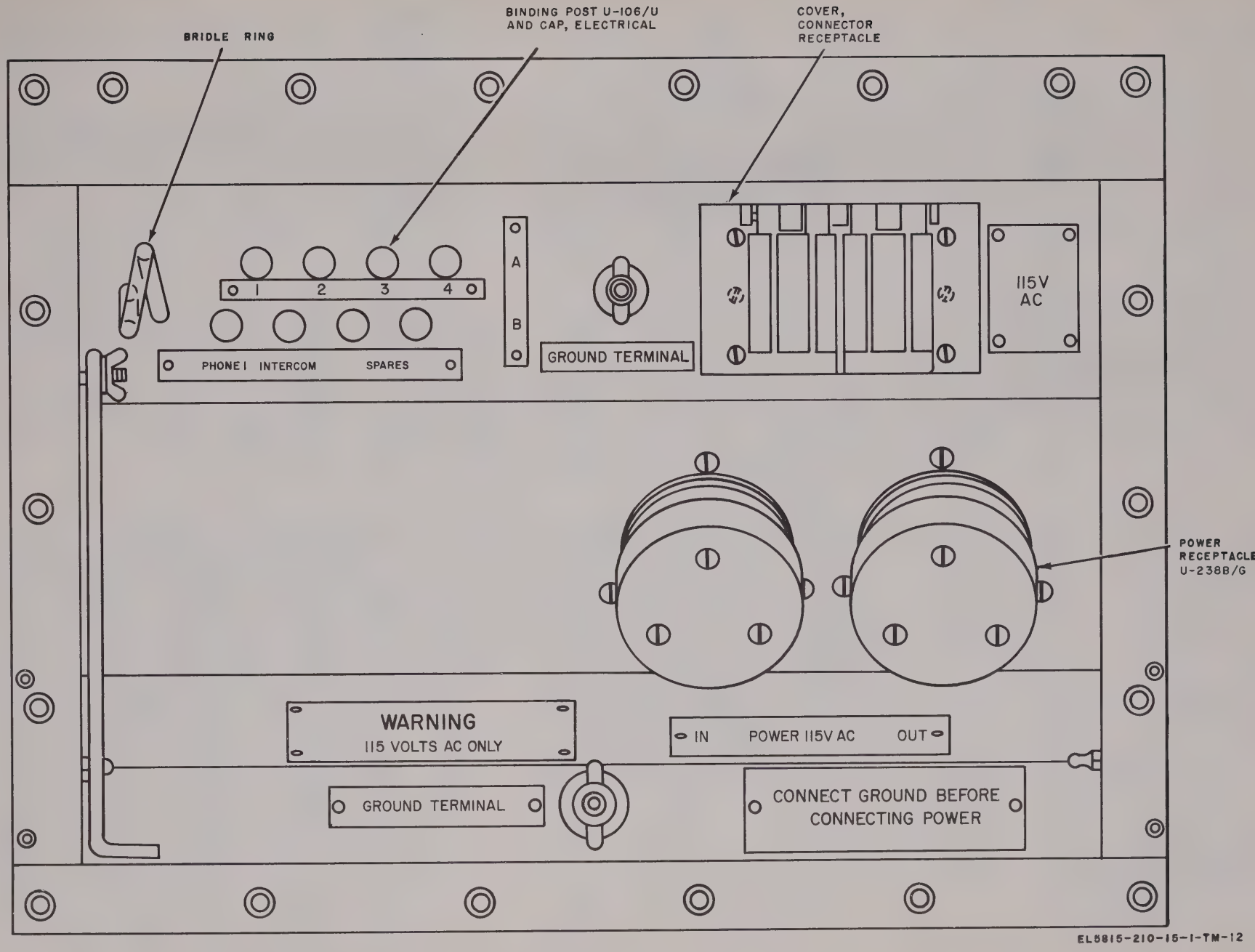


Figure 2–5. Power entrance box, cover removed.

or to supply power to AN/MGC–9A if the POWER 115V AC IN receptable is damaged. When the POWER 115V AC OUT receptacle is used to supply power to another assemblage, do not allow the total current drain to exceed 60 amperes (current rating of the receptacle), or the capability of the power source if lower than 60 amperes.

b. Preliminary Procedures.

(1) Make sure that all circuit breakers and equipment power switches are in the OFF position.

(2) Remove the power cable, the power stub, and the cable reel from the shelter (fig. 1–6).

(3) Unwind the power cable and power stub from the cable reel.

c. Connection to a Generator Set. If a generator set is to provide power for the AN/MGC–9A, connect ac power to the POWER ENTRANCE BOX as described in (1) and (2) below; otherwise, connect power as described in *d* below.

(1) Remove the cover from the POWER 115V AC IN receptacle in the POWER ENTRANCE BOX (fig. 2–5) and from the connector at one end of the power cable. Connect the power cable to the POWER 115V AC IN receptacle.

(2) If the generator set includes an output connector that is compatible with a connector of the power cable, connect the power cable connector to the output connector of the generator set; otherwise, refer to the generator set technical manual and connect the red and white (neutral), and black (hot) leads of the power stub to the appropriate output terminals of the generator set. Remove the covers from the connectors of the power stub and the power cable, and interconnect the connectors.

d. Connections to Commercial Power Source.

(1) Turn off or disconnect the commercial power before making any connections.

(2) If the power source is 120 volt, 50–60 cycles per second (cps), single-phase, two-wire source, connect the red and white wires of the power stub to the neutral wire, and connect the black wire of the power stub to the hot wire.

(3) If the power source is a 110–220 volt, 50–60 cps, single-phase (or two-phase), three-wire distribution system, connect the red and white wires of the power cable stub to the neutral terminal and the black wire to either of the two hot terminals of the source.

(4) If the power source is a 110–220 volt, 50–60 cps, three-phase, four-wire distribution system, connect the red and white wires of the power stub to the neutral bus bar, and the black wire to the phase 1, phase 2, or phase 3 bus bar.

(5) Connect the power cable stub to one end of the power cable, and connect the other end of the power cable to the POWER 115V AC IN receptacle in the POWER ENTRANCE BOX.

Section IV. SIGNAL CONNECTIONS

2–19. General

The signal connections to the AN/MGC–9A depend on the circuit requirements of the area type communications system. Each connection must be identified with designation strips. The circuits available at the AN/MGC–9A are indicated below.

a. Switchboard Circuits. Local line and trunk circuits are terminated by 26-pair cable connections or by field wire/binding post connections at the SIGNAL 1 and SIGNAL 2 through 5 SIGNAL ENTRANCE boxes. The chart below identifies each 26-pair receptacle and binding post pair number in the entrance boxes with the switchboard line jack number to which it connects.

b. Intershelter Circuits. Local line terminations for the TA–312/PT and the LS–147D/FI may be made at the SIGNAL 1 SIGNAL ENTRANCE BOX and SIGNAL 2 through 5 SIGNAL ENTRANCE BOX to pairs 25 and 26 of any of the

Binding posts and 26-pair receptacles		SB–86/P		
Signal	Pair No.	Position No.	TA–207/P	Jack No.
1	1–12	1	Lower	1–12
1	13–24	2	Lower	1–12
2	1–12	2	Lower	13–24
2	13–24	1	Lower	13–24
3	1–6	1	Lower	25–30
3	7–12	1	Upper	1–6
3	13–18	2	Lower	25–30
3	19–24	2	Upper	1–6
4	1–12	2	Upper	7–18
4	13–24	1	Upper	7–18
5	1–12	1	Upper	19–30
5	13–24	2	Upper	19–30

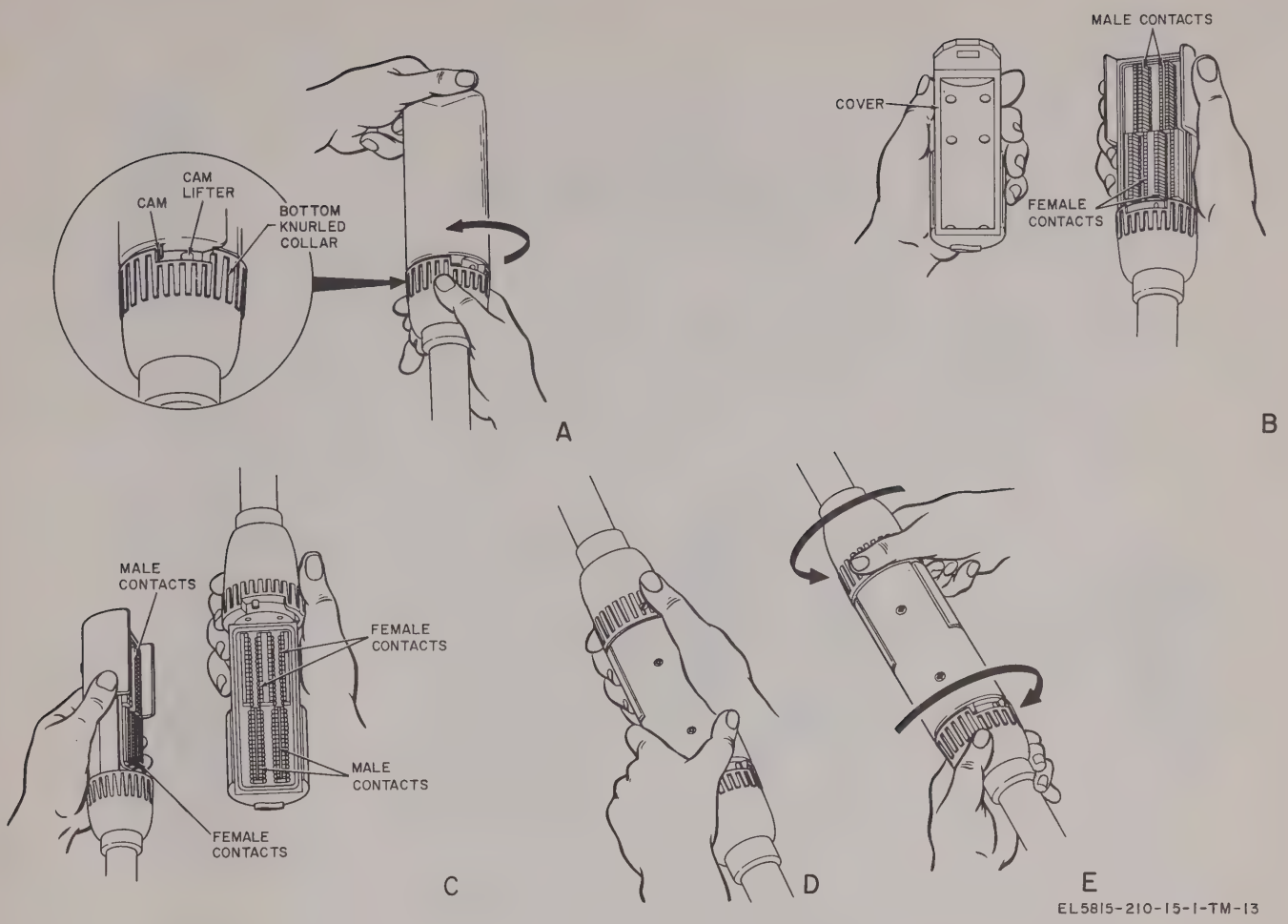


Figure 2–6. Coupling 26-pair connectors.

26-pair receptacles, or to the PHONE and INTERCOM binding post in the POWER ENTRANCE BOX by field wire connections.

2–20. Connecting 26-Pair Cables
(fig. 2–6 and 2–7)

a. Remove the dust cover from the 26-pair cable connector.

b. Place the 26-pair cable connector on the receptacle. Be sure the connection is positioned squarely on the receptacle.

c. Gently press the connector into the receptacle.

CAUTION

The connector or receptacle inserts may be damaged if the connector is not properly positioned or if too much pressure is required to interconnect the units.

d. Replace dust cover.

e. Check to be sure that the locks on the outer and upper ends of the connector and receptacle are securely locked.

f. Disconnecting the 26-pair cable connector (fig. 2–6).

(1) Grasp the locking ring on the 26-pair cable connector, near the cable, and turn it counterclockwise until the lock at each end of the connector is released.

(2) Carefully lift the 26-pair cable connector from the receptacle.

CAUTION

Do not twist the connector when lifting it from the receptacle. Twisting will damage the contacts.

(3) Replace the dust covers on the 26-pair cable connector and receptacle immediately.

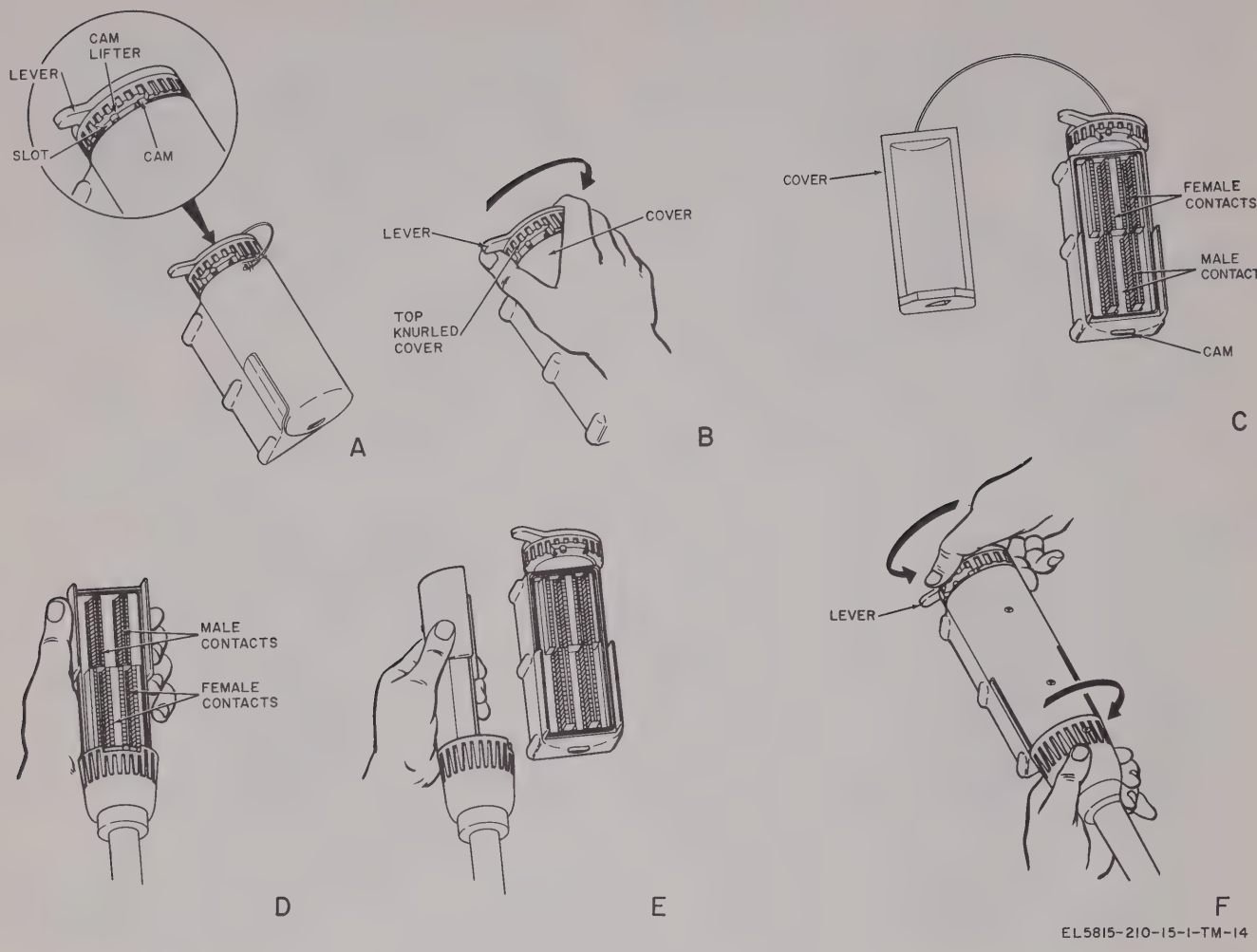


Figure 2–7. Coupling 26-pair connector to receptacle.

CAUTION

Do not drop or lay the open connector on the ground. Dirt and moisture will cause corrosion and damage contacts.

2–21. Connecting Field Wire

Connect field wire pairs to the binding posts in the SIGNAL 1 SIGNAL ENTRANCE BOX (fig. 2–8) as follows:

a. Remove one-half inch of insulation from the end of each field wire requiring connection.

b. Depress the binding post to open the slot. Insert the field wire in the open slot and then release the binding post.

2–22. Connecting J–1077/U

The J–1077/U may be used to provide additional binding post (field wire) connections through a 26-pair receptacle on the SIGNAL 1 and SIGNAL 2–5 signal entrance boxes. To provide additional binding post connections, perform the following (fig. 2–8):

a. Remove the J–1077/U from its storage bracket (fig. 5–1).

b. Release the fasteners and open the cover.

c. Connect one end of a 26-pair cable to one of the 26-pair receptacles on the J–1077/U.

d. Connect the other end of a 26-pair cable to the appropriate 26-pair receptacle on the signal entrance box.

e. Connect the field wire pairs to the appropriate binding posts on the J–1077/U, as required.

CHAPTER 3

OPERATING INSTRUCTIONS

3-1. Controls and Instruments

The following are the descriptions and functions of the controls and instruments of the shelter components. For information concerning the controls and instruments of the major components, refer to the applicable technical manuals listed in appendix A.

a. Power Distribution Panel (fig. 2-2).

Control, indicator or instrument	*Description and function*
MAIN circuit breaker switch	Two internally ganged 60-ampere circuit breakers. Provides overload protection for 115-volt ac input source and ON-OFF control of ac power to individual circuit breaker switches.
Tributary circuit breaker switches:	Provide ON-OFF control and overload protection for individual circuits as follows:
1. LIGHTS	15 Amperes fluorescent lights.
2. EQUIP	20 Amperes major component receptacles.
3. HEATER 1	20 Amperes electric heater No. 1 power receptacle.
4. AIR COND	20 Amperes air conditioner power receptacle.
5. CONVENIENCE	15 Amperes convenience receptacles.
6. BLOWER	15 Amperes exhaust blower receptacle.
7. HEATER 2	20 Amperes electric heater No. 2 power receptacle.
Voltmeter	Ac voltmeter with 0- to 150-volt scale. Indicates ac input voltage from external power source.
Ammeter	AC ammeter with 0- to 100-ampere scale. Indicates total current drain from external power source by AN/MGC-9A components in use.
Glowlamp	Neon lamp. Glows when associated circuit breaker is ON.

b. Lighting (fig. 5-1).

Control or indicator	*Description and function*
BLACKOUT BYPASS switch	Two-position, ON-OFF switch. Control lighting in the AN/MGC-9A for blackout operation as follows: ON—fluorescent lights are controlled by the individual light switches. OFF—fluorescent lights are controlled by the door interlock switch.
POWER INDICATOR NEON LAMP	Neon lamp. Lights when ac power is connected to AN/MGC-9A.
Door interlock	Switch extinguishes all lights when shelter door is open. (BLACKOUT BYPASS switch in OFF position.)
FLUORESCENT LIGHT switches	Two-position, ON-OFF switches. Controls all fluorescent lights.
COLD START INCANDESCENT LIGHT switch	Two-position, ON-OFF switch. Controls the ceiling incandescent lights.

c. Intercommunication Station LS-147 ( )/FI (fig. 3-3).

Control or indicator	*Description or function*
OFF-SEND switch	Ganged ON-OFF switch and potentiometer. Turns ac power ON and OFF and controls volume of output signal. Switch must be ON to originate a call.
PRESS TO TALK switch	Two-position, nonlocking switch. Switch must be pressed to originate call.
RECEIVE control	Potentiometer. Controls speech volume to loudspeaker.
Glowlamp	Neon lamp. One-half of lamp glows when internal dc power supply is operating.

d. Patch Panel (fig. 3–4).

Jack	*Description and function*
CONN. (*) PR23 and 24	Terminating jacks. Provide a means of connecting a line pair to the CV–425/U.
CV–425/U (*) LOOP jacks (4)	*Designated by signal connectors 2 through 5 and CV–425/U No. 1 through No. 4.
CV–425/U (*) LINE jacks (4)	
CONN. (*) PR23 and 24:	Cutoff jacks. Provide a means of inserting SB–86/P lines through the CV–425/U.
SB–86/P (*) LINE Jacks (8)	*Designated by SB–86/P No. 1 or No. 2, TA–207/P upper or lower, and switchboard LINES NO. 5, 6, 17, 18, 23, 24, 29, or 30.
SPARE BINDING POSTS (4) and JACKS (2):	Terminating jacks. Provide a means of connecting equipment directly to external lines.
PAIR 3 PWR ENT BOX	Binding posts. Connected in parallel with the SPARE jacks.
PAIR 4 PWR ENT BOX	

e. Blowers, Heaters, and Air Conditioner.

Control	*Description and function*
(1) *Blower.*	
BLOWER switch	Two-position ON-OFF switch. Controls operation of BLOWER.
(2) *Heater* (fig. 3–2).	
HEAT-OFF-FAN switch	Three-position toggle switch: HEAT—applies ac power to heater element and fan motor. OFF—disconnects ac power from heater element and fan motor. FAN—applies ac power to fan motor only.
TEMPERATURE CONTROL	Thermostat control. Regulates temperature provided by heating element.
(3) *Air Conditioner* (fig. 3–5).	
THERMOSTAT-COOLER	Thermostat control. Regulates temperature from air conditioner.
OFF-FAN-COOL	Three-position toggle switch: OFF—disconnects ac power to air conditioner system. FAN—applies ac power to ventilating fan motor. COOL—applies ac power to ventilating fan and compressor.
CLOSED-FRESH AIR OPEN	Three-position control: CLOSED—Keeps outside air from the assembly. OPEN—Permits entry of outside air into the assembly.

f. TH–22/TG and TT–98/FG Switch Panel (fig. 5–1).

Control or indicator	*Description and function*
Position No. 1:	
ON-OFF switch	Two-position toggle switch. Controls ac power to TH–22/TG and TT–98/FG.
Glowlamp	Neon lamp. Glows when associated toggle switch is on.
Position No. 2:	
ON-OFF switch	Two-position toggle switch. Controls ac power to TH–22/TG and TT–98/FG.
Glowlamp	Neon lamp. Glows when associated toggle switch is on.

3–2. Energizing Ac Circuits

Perform the following preliminary starting procedures to prepare Central Office, Teletypewriter AN/MGC–9A for full operation:

a. When a generator set is used to supply ac power, start the generator.

b. When a commercial power source is used, apply power from the source terminals.

c. Operate the MAIN circuit breaker switch on the POWER DISTRIBUTION PANEL to ON (fig. 2–2).

d. Operate the BLACKOUT BYPASS switch to ON. When blackout conditions are required, operate the switch to OFF.

e. Operate the LIGHTS circuit breaker switch to ON.

f. Operate the FLUORESCENT LIGHT switches to ON.

g. Check the voltmeter (fig. 2–2). It should indicate 115 volts ac ±10.

h. Check the ammeter. It should indicate approximately 0 ampere.

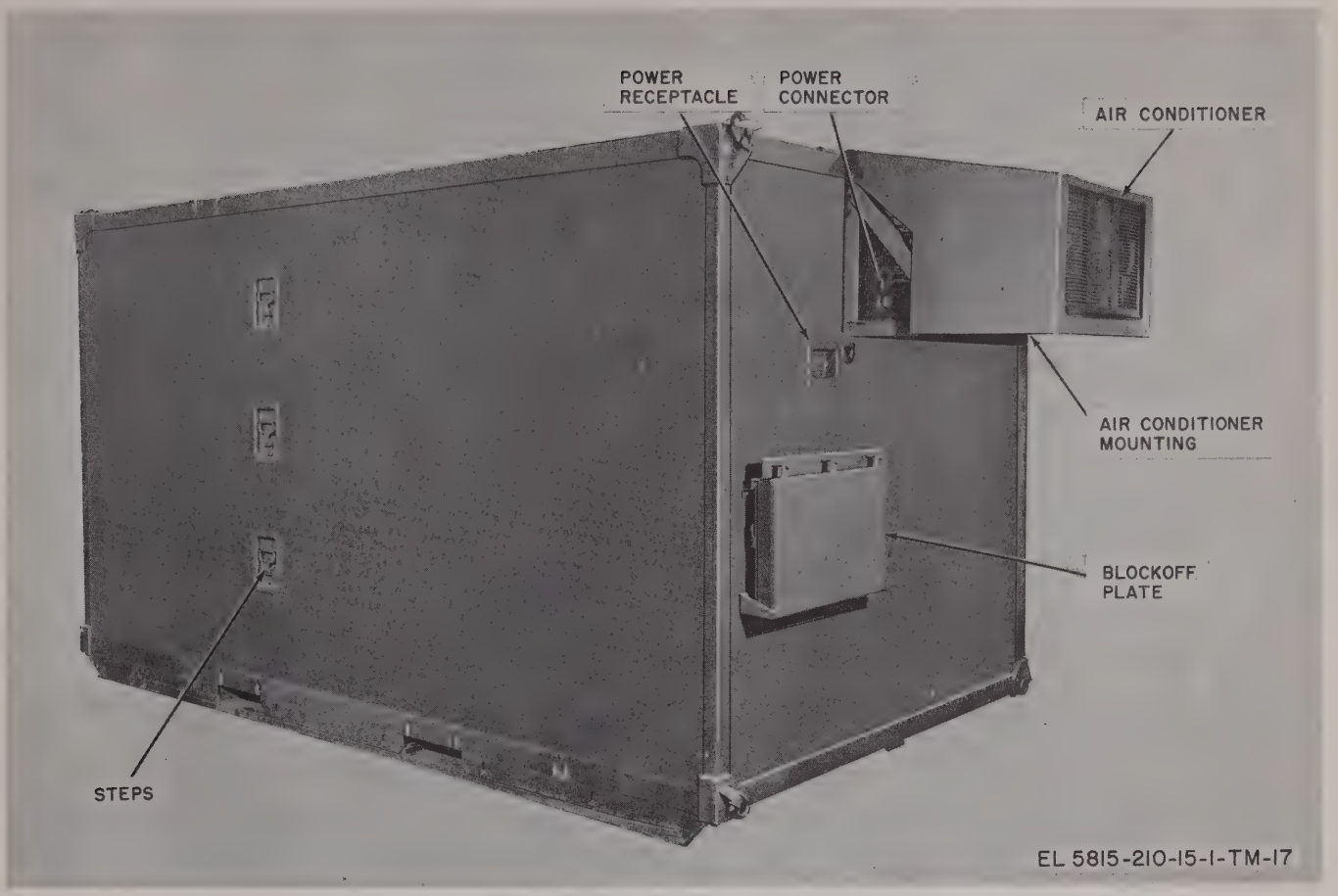


Figure 3–1. Central office, teletypewriter, AN/MGC–9A, with air conditioner, exterior view.

i. Operate circuit breaker switches No. 2 through No. 6 to ON.

3–3. Operating Heaters and Air Conditioner

a. Connect the power cords for the heaters to their respective outlets.

b. Operate the HEAT-OFF-FAN switch to desired position. Set TEMPERATURE CONTROL for the desired temperature.

c. Connect the power cord for the air conditioner to its proper outlet (fig. 3–1).

d. If conditioned air is desired, set air conditioner switches as outlined in paragraph 3–1*e*.

3–4. Patching
(fig. 3–4)

a. Patching is required when the CV–425/U is used to provide voice frequency ringing to the line facilities. To connect CV–425/U No. 1 to the line facility make the following patch cord connections:

(1) Insert one end of a patch cord into the CONN 2 PR 23 & 24 CV–425/U 1 LOOP jack and the other end into the CONN 2 PR 23 & 24 SB–86/P 1 LOWER TA–207/P LINE 23 jack.

(2) Insert one end of a patch cord into the CONN 2 PR 23 & 24 CV–425/U 1 LINE jack and the other end into the CONN 2 PR 23 & 24 SB–86/P 1 LOWER TA–207/P LINE 24 jack.

b. To connect CV–425/U No. 2, No. 3, and No. 4 to the line facility follow the procedures in (1) and (2) above, using the appropriate jacks.

3–5. Operation Under Adverse Climatic Conditions

The AN/MGC–9A has been designed to operate under conditions of extremely cold or hot climates. The assemblage offers complete protection from the elements for personnel and equipment. Howwever, there are certain precautions to be

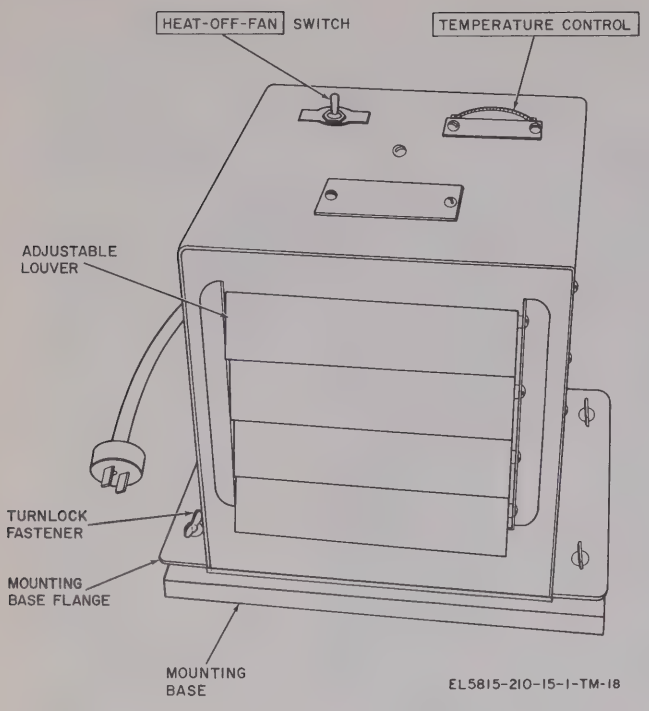


Figure 3-2. Electrical heater, controls and mounting base.

taken under certain climates and they are listed as follows:

a. Cold Climates.

(1) Extreme cold climate causes cables and field wires to become hard aand brittle, and thus difficult to handle. Be careful when handling the cables and connecting them to the assemblage so that kinks and unnecessary loops will not result in permanent damage.

(2) Make sure that the binding posts and receptacles on the outside of the assemblage are kept free of frost, snow, and ice by replacing the covers over the receptacles and closing the covers of the entrance boxes when they are not in use. Lower the folding side panels whenever the entrance box covers are open. Replace the connector cover on a 26-pair cable as soon as the cable is disconnected from the equipment. Never drag or place an open connector in snow.

b. Hot Climates.

(1) In hot, dry climate, the connectors, receptacles, and binding posts are subject to damage from dirt and dust. Close the covers on the entrance boxes when they are not in use. Replace covers over connectors and receptacles.

(2) Lower the folding side panels whenever the entrance box covers are open.

(3) Never drag or place an open 26-pair connector on the ground.

c. Warm, Damp Climates.

(1) In warm, damp climates the equipment is subject to damage from moisture and fungi. Wipe all moisture and fungi from the exterior of the equipment with a clean cloth.

(2) The receptacle and connector contacts are susceptible to corrosion that will cause a high

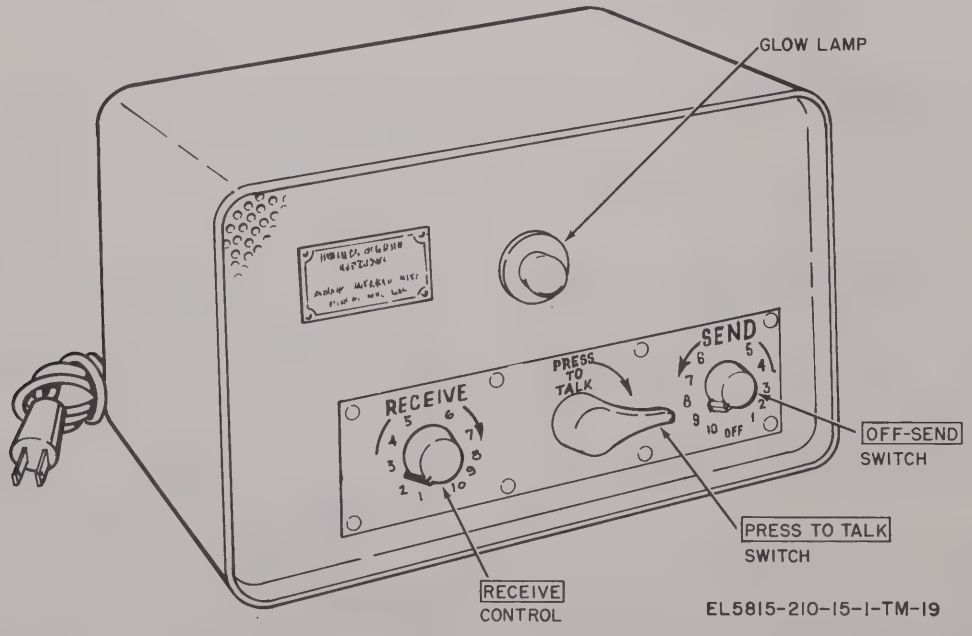


Figure 3-3. Intercommunication Station, LS-147D/FI.

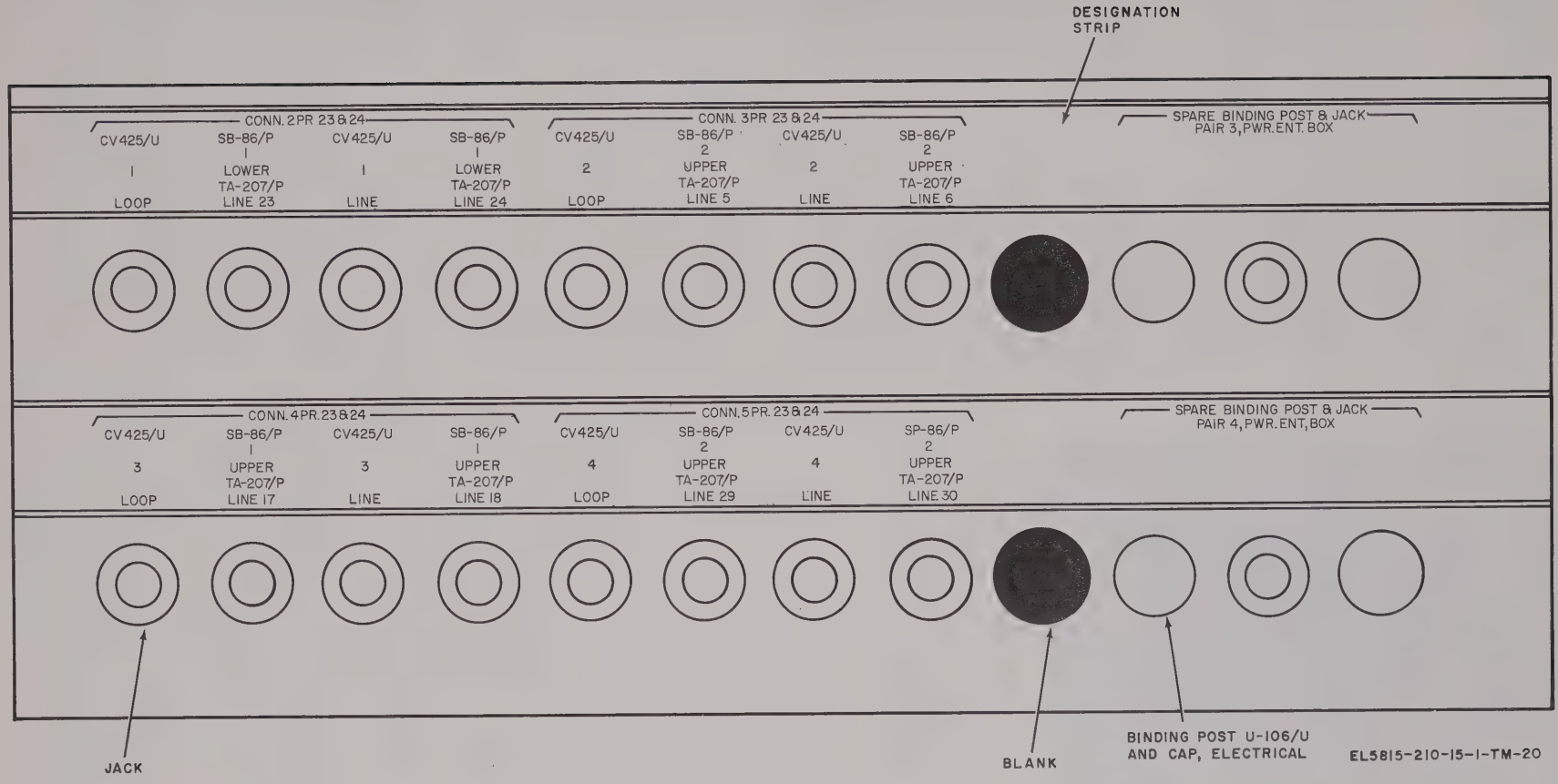

DESIGNATION STRIP
CONN. 2 PR 23 & 24
CV425/U 1 LOOP
SB-86/P 1 LOWER TA-207/P LINE 23
CV425/U 1 LINE
SB-86/P 1 LOWER TA-207/P LINE 24
CONN. 3 PR 23 & 24
CV425/U 2 LOOP
SB-86/P 2 UPPER TA-207/P LINE 5
CV425/U 2 LINE
SB-86/P 2 UPPER TA-207/P LINE 6
SPARE BINDING POST & JACK PAIR 3, PWR. ENT. BOX
CONN. 4 PR. 23 & 24
CV425/U 3 LOOP
SB-86/P 1 UPPER TA-207/P LINE 17
CV425/U 3 LINE
SB-86/P 1 UPPER TA-207/P LINE 18
CONN. 5 PR. 23 & 24
CV425/U 4 LOOP
SB-86/P 2 UPPER TA-207/P LINE 29
CV425/U 4 LINE
SP-86/P 2 UPPER TA-207/P LINE 30
SPARE BINDING POST & JACK PAIR 4, PWR. ENT, BOX
JACK
BLANK
BINDING POST U-106/U AND CAP, ELECTRICAL
EL5815-210-15-1-TM-20

Figure 3–4. Patch panel.

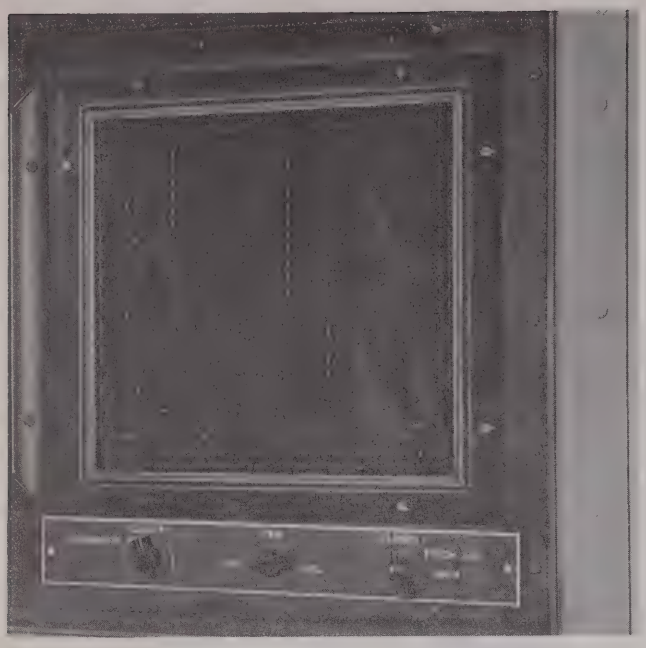


Figure 3–5. Air conditioner, control panel.

resistance contact area. Wipe all receptacle and connector contacts with a clean, dry cloth before connecting them together.

3–6. Stopping Procedure

a. Emergency Stopping. To turn the power supply off in an emergency, operate the MAIN circuit breaker on the POWER DISTRIBUTOR PANEL to the OFF position.

b. Stopping Procedure for Standby Condition.

(1) To stop the major components of the assemblage, refer to the applicable technical manual (app. A) and follow the procedures outlined.

(2) Shut down the heater (fig. 3–2) by turning the TEMPERATURE CONTROL switch to its lowest setting and the HEAT-OFF-FAN switch to OFF.

(3) Shut down the air conditioner by turning the THERMOSTAT to its lowest setting; turn the OFF-FAN-COOL switch to OFF; turn the CLOSED-FRESH AIR-OPEN control to CLOSED.

c. Stopping Procedure for Shutdown Condition.

(1) Repeat *b*(1), (2), and (3) above.

(2) Operate all light switches and circuit breakers to OFF.

CHAPTER 4

MAINTENANCE

Section I. OPERATOR'S AND ORGANIZATIONAL MAINTENANCE

4-1. Scope of Operator's and Organizational Maintenance

a. General.

(1) Operator's preventive maintenance is the systematic care, servicing, and inspection of the equipment to prevent the occurrence of trouble, to reduce downtime, and to maintain the equipment in serviceable condition. Operator's preventive maintenance is performed daily. The specific procedures are provided in paragraph 4-2.

(2) Organizational Maintenance consists of preventive maintenance, troubleshooting, and replacement of authorized repair parts (app D). Organizational preventive maintenance is performed on a monthly and quarterly basis. Procedures are covered in paragraphs 4-3 and 4-4.

(3) Preventive maintenance checks and services (para. 4-2 to 4-4) provide specific instructions to help maintain equipment in serviceable condition, and indicate items to be checked, how often, and specific procedures to use.

(4) Defects that cannot be corrected must be reported to personnel at a higher maintenance category. Records and reports of repair and preventive maintenance must be in accordance with procedures given in TM 38-750.

b. Preventive Maintenance Checks and Services Periods. Preventive maintenace checks and services for an operating AN/MGC-9A are required on a daily, monthly, and quarterly basis. These checks must be performed during the specified intervals. In addition, the daily checks and services must be performed under special conditions listed below:

(1) When the equipment is initially installed.

(2) When the equipment is reinstalled after removal for any reason.

(3) At least once each week if the equipment is maintained in standby condition.

c. Cleaning.

WARNING

The fumes of trichloroethane are toxic. Provide thorough ventilation whenever used. DO NOT use near an open flame. Trichloroethane is not flammable, but exposure of the fumes to an open flame converts the fumes to highly toxic, dangerous gases.

(1) Use a clean, dry, lint free cloth or brush to remove dirt and dust. If necessary, moisten the cloth or brush with cleaning compound. After cleaning, wipe dry with a cloth.

WARNING

Compressed air is dangerous and can cause serious bodily harm. It can also cause mechanical damage to the equipment. Do not use compressed air to dry parts where cleaning compound has been used.

(2) Dry, compressed air, not to exceed 60 pounds per square inch (psi), may be used to remove dirt and dust from inaccessible places.

d. Touchup Painting. To do touchup painting, first clean the rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Next, brush two thin coats of paint on the bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TB 746-10.

4-2. Operator's Daily Preventive Maintenance Checks and Services

The following chart provides a complete list of operator's daily peventive maintenance checks and services.

NOTE

If the AN/MGC-9A is in continuous use, perform only those sequence numbers which do not interfere with the operation of the equipment (Sequence Nos. 1 through 13).

Sequence No.	Item	Procedure	References
		EXTERIOR	
1	External condition	Check for skin punctures, cracks, or open seams that could permit moisture to enter wall.	Figure 1–1.
2	Grounding system	*a.* Check to see that grounding system is properly installed in shelter.	*a.* Para 2–17.
		b. Tighten loose ground lead connections	*b.* None.
3	Sling assembly	Tighten turnbuckles to remove slack in sling assembly	Figure 2–4 and para 2–16*b*.
4	Power and signal entrance boxes.	*a.* Clean area around binding posts and receptacles	*a.* None.
		b. Put covers on unused receptacles to keep out moisture, dirt, sand, and to protect contacts.	*b.* Para 3–5.
5	Power and signal cable assemblies.	*a.* Clean cable insulation and connectors	*a.* None.
		b. Tighten loose connectors	*b.* Para 2–20 and figure 4–10.
		c. Adjust cable grips to reduce strain of cable weight	*c.* None.
	Power and signal cable assemblies.	*d.* Put covers on unused cable connectors to keep out moisture, dirt, sand, and to protect contacts.	*d.* Para 3–5.
		INTERIOR	
6	Signal and power cables, cords, wires, and patching cords.	*a.* Tighten loose connections of plugs and connectors	*a.* None.
		b. Check to see that insulation is not cut. Remove kinks and strain	*b.* None.
7	Lighting system	Replace defective lamps and fluorescent lamp starters with spares	Para 4–10.
8	Walls, ceiling, and floor	Check for holes, open seams, or signs of leaks or water seepage	None.
9	Wastepaper receptacles	Empty and clean receptacles	None.
10	Storage drawers	Remove refuse and unauthorized articles	Appendix B.
11	Batteries and lantern	Replace batteries or lamp if lantern fails to light	Appendix B. Figure 4–1.
12	J–1077/U (if stored in assemblage).	Perform procedures given in Sequence No. 4	Figure 5–1.
13	Clock	Install batteries and set to correct time	Figure 5–1.
		OPERATION	
14	Knobs, dials, and switches.	While making operational checks (Sequence No. 15 through 31) make sure that operation of each dial, knob, and switch is free from internal binding.	Paragraph 3–1 and applicable TM's (app. A).
		NOTE	
		When ac power is applied to assemblage, POWER INDICATOR LAMP should light.	
15	MAIN circuit breaker	Operate to ON. Voltmeter should indicate 115 volts ±10	Figure 2–2.
16	LIGHTS circuit breaker	Operate to ON. Associated indicator should light	Figure 2–2.
17	BLACKOUT BYPASS and FLUORESCENT light switches.	Operate to ON. Fluorescent ceiling lights should light	Figure 5–1
18	BLACKOUT BYPASS switch.	Operate to OFF and open door. Fluorescent ceiling lights should extinguish.	Figure 5–1.
19	BLOWER circuit breaker	Operate to ON. Associated indicator lamp should light	Figure 2–2.
20	BLOWER switch	Operate to ON. Blower 1 should operate and ammeter on POWER DISTRIBUTION PANEL should indicate approximately 3 amperes.	Figure 5–1.
21	HEATER 1 circuit breaker.	Operate to ON. Associated indicator lamp should light	Figure 2–2.
22	HEAT-OFF-FAN and TEMPERATURE CONTROL switch.	*a.* Operate to HEAT. Fan should operate and heat should circulate	Figure 3–2.
		b. Operate to FAN. Fan should operate but no heat circulate.	
		c. Operate to OFF. Fan should stop and no heat circulate.	
23	CONVENIENCE circuit breaker.	Operate to ON. Associated indicator lamp should light. Trouble light should light in CONVENIENCE outlets.	Figure 2–2.
24	EQUIPMENT circuit breaker.	Operate to ON. Associated indicator lamp should light. Trouble light should light in EQUIPMENT outlets.	Figure 2–2.
25	HEATER 2 circuit breaker.	Operate to ON. Associated indicator lamp should light	Figure 2–2.

Sequence No.	Item	Procedure	References
26	HEAT-OFF-FAN and TEMPERATURE CONTROL switch.	Same as Sequence No. 24	Figure 3–2.
27	AIR COND circuit breaker.	Operate to ON. Associated indicator lamp should light	Figure 2–2.
28	OFF-FAN-COOL switch on air conditioner.	*a.* Operate to FAN. Fan should operate *b.* Operate to COOL. Fan should operate and cool air circulate. *c.* Operate in OFF position. Fan should not run and air should not circulate.	Figure 3–5.
29	ON-OFF switches of TH–22/TG and TT–98/FG switch panel.	Operate to ON. Associated indicator lamps should light	Figure 5–1.
30	Communication equipment.		
	a. TT–98/FG	*a.* Perform daily checks and services	*a.* Appendix A.
	b. TA–312/PT	*b.* Perform daily checks and services	*b.* Appendix A.
	c. SB–86/P	*c.* Perform daily checks and services	*c.* Appendix A.
		d. Perform daily checks and services for TH–22/TG	Appendix A.
		e. Perform daily checks and services for CV–425/U	Appendix A.
		f. Perform daily checks and services for LS–147D/FI	Appendix A.
31	Equipment operation	*a.* Check to see that all equipment performs satisfactorily	*a.* Appendix A.
		b. Report operation failure of any equipment or circuit	*b.* TM 38–750.
		c. Replace defective items for which authorized spare parts are provided.	*c.* Appendixes A and B.

4–3. Organizational Monthly Preventive Maintenance Checks and Services

Sequence No.	Item	Procedure	References
		EXTERIOR	
1	Shelter facility skin and hardware.	Paint blistered, pitted and flaking areas and bare metal spots (such as steps, signal entrance box covers, skids, towing eyes, etc).	TB 750–240.
2	Grounding system	Clean ground stud connections	Para 4–1.
3	Sling assembly	Clean parts and paint bare metal spots	Figure 2–3; para 4–1.
4	Door	*a.* Clean. Paint bare metal spots	*a.* Para 4–1.
		b. Tighten loose screws and bolts	*b.* None.
		c. Lubricate door locks and latches with grease, graphite, Aircraft (GGA). Lubricate hinges with Lubricating Oil, General Purpose, Preservative (PL Special) or Lubricating Oil, Internal Combustion Engine (OE–10).	*c.* None.
		d. Clean air filter	*d.* Figure 1–1 and para 4–1*c*.
		e. Put gasket cement on loose gaskets	*e.* None.
5	Binding posts, signal, and power entrance boxes.	*a.* Remove corrosion from metal of wires connected to binding posts	*a.* Figures 1–1, 2–5, 2–8, and 2–9.
		b. Lubricate piano-type hinges of covers with oil, PL Special or (OE–10).	*b.* None.
		c. Paint bare metal spots	*c.* Para 4–1*d*.
6	Power and signal cable assemblies.	*a.* Repair insulation cuts and abrasions with electrical insulation tape.	*a.* None.
		b. Inspect cable layout and relocate cables as necessary so that they are not endangered by, and not dangerous to, vehicles and personnel.	*b.* None.
		INTERIOR	
7	Signal and power cables, cores, wires, and patching cords.	*a.* Tighten screws and clamps that hold wires to terminals	*a.* None.
		b. Repair insulation cuts and abrasions with electrical insulation tape.	*b.* None.
		c. Cover unconnected bare wires with electrical insulation tape to prevent damage to equipment and personnel.	*c.* None.
		d. Polish metal plugs (such as those on patching cords and telephone cords) with metal paste polish.	*d.* None.

Sequence No.	Item	Procedure	References
8	Signal, power, and lighting system ducts.	*a.* Tighten loose screws, bolts, and clips	*a.* None.
		b. Repair or replace defective switches, switchplates, outlets, receptacles, and jacks.	*b.* Para 4–9.
9	Lighting system	*a.* Tighten loose screws and nuts that hold lighting fixtures, lights and parts of POWER DISTRIBUTION PANEL.	*a.* None.
		b. Repair or replace defective parts of lighting system and on POWER DISTRIBUTION PANEL.	*b.* None.
10	Walls, ceiling, and floors	*a.* Clean all parts	*a.* Para 4–1*c* and *d*.
		b. Check for skin punctures and cracked seams	*b.* None.
11	Cabinets	Repair or replace broken doors and latches	None.
12	Equipment mountings	*a.* Tighten loose bolts, nuts, and screws that hold equipment racks, frames, shelves, brakes, clamps, and mounting hardware. Replace missing bolts, nuts and screws.	*a.* Figure 5–1.
		b. Check to see that equipment mountings, such as frames, racks, shelves, braces, and clamps are not so bent, broken, or out of shape as to endanger equipment or personnel.	*b.* Figure 5–1.
13	Batteries and lantern	*a.* Replace batteries that show signs of swelling, leaking, or corrosion.	*a.* Figure 4–2.
		b. Clean battery compartments	*b.* Para 4–1*c*.
14	Exhaust blower	*a.* Lubricate at all points with oil, PL Special or OE–10	*a.* None.
		b. Remove dirt and grease from motor and fan housing	*b.* Para 4–1*c*.
15	Heater	*a.* Clean inside and outside of case	*a.* Para 4–1*c*.
		b. Repair or replace defective parts	*b.* None.
16	J–1077/U (if stored in assemblage).	Perform procedures in Sequence No. 5 above	Figure 5–1.
17	Clock	Replace batteries if correct time cannot be maintained	Figure 1–2.
18	Communication equipment.		
	a. TH–22/TG	*a.* Perform preventive maintenance checks and services	*a.* Appendix A.
	b. TA–312/PT	*b.* Perform preventive maintenance checks and services	*b.* Appendix A.
	c. SB–86/P	*c.* Perform preventive maintenance checks and services	*c.* Appendix A.
	d. TT–98/FG	*d.* Perform preventive maintenance checks and services	*d.* Appendix A.
	e. Patch panel	*e.* Use compressed air, if available, to remove dust and dirt from around wiring and jacks. Repair broken wire connections and tighten loose jacks.	*e.* Figure 3–4.

4–4. Organizational Quarterly Preventive Maintenance Checks and Services

Sequence No.	Item	Procedure	References
1	Components:		
	a. Inventory	*a.* Inventory equipment and requisition missing and defective parts.	*a.* Appendix B.
	b. Location of parts	*b.* Check to see that all components are mounted or stored in assigned places.	*b.* Figure 5–1.
	c. Publications	*c.* Requisition all operator and organizational maintenance manuals and all parts manuals covering the AN/MGC–9A and its components that are not on hand or in usable condition (including all current changes publications).	*c.* DA Pam 310–4.
2	Modification work orders	Check to see whether any MWO's are required for the AN/MGC–9A or its components. Check equipment to see if applicable MWO's have been applied and MWO number stamped as required. Perform modification or request modification as applicable.	See applicable MWO; see DA Pam 310–7 for MWO listing.
		EXTERIOR	
3	Shelter facility skin and hardware.	*a.* Check for skin punctures, cracks, or open seams that would permit moisture to enter wall.	*a.* TB 750–240.
		b. Repair or replace defective hardware	*b.* None.
4	Grounding system	Replace ground rod if the ground lead cannot be securely tightened. Replace ground lead if it is cut, corroded, or broken.	None.
5	Door	Replace defective or missing rubber gaskets or those that do not provide a watertight seal. Replace broken door hinges or latches.	TB 750–240.

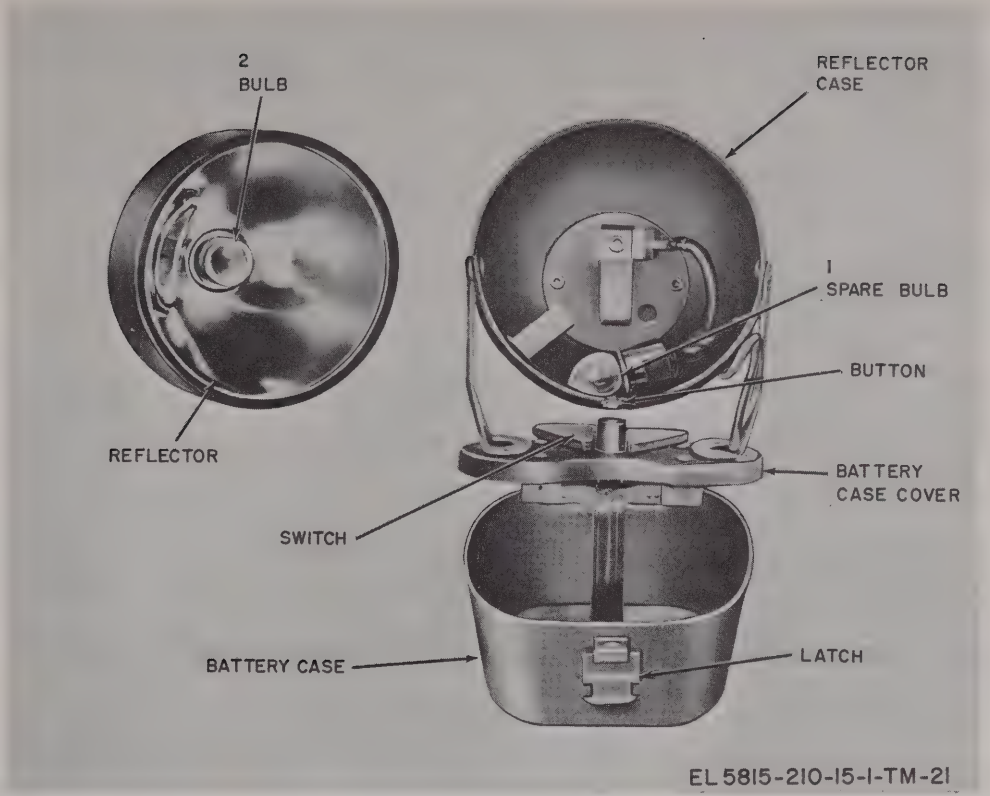


Figure 4–1. Hand lantern, partially disassembled.

Sequence No.	Item	Procedure	References
6	Binding posts and power and signal entrance boxes.	*a.* Carefully remove sand, dirt, and moisture from among contacts of 26-pair cable connectors.	*a.* Figures 1–1, 2–5, 2–8, and 2–9.
		b. Tighten locknuts, screws, and bolts that hold receptacles and binding posts.	*b.* None.
		c. Replace all defective parts	*c.* None.
7	Power and signal cable assemblies.	Replace cable assemblies in which wiring insulation or connectors are defective.	Figure 4–8.
		INTERIOR	
8	Signal power cables, cords and patching cords.	*a.* Dress all cables, wires and cord neatly using cable and cord clamps provided in assemblage; or use electrical insulation tape and twine.	*a.* None.
		b. Repair or replace defective cables, cords, wires, and patching cords.	*b.* Appendix B.
9	Walls, ceiling, and floor	Paint blistered, pitted, or flaking areas, and bare metal spots	Para 4–1*d*.
10	Fire extinguisher	*a.* Refill if weight of contents is less than prescribed, or if seal is broken.	*a.* Appropriate personnel.
		b. Replace if valve assembly is damaged	*b.* Apprendix B.
11	First aid kit	Replace if case is broken or damaged. Replace parts that have been used. (See parts list inside front cover.)	Appendix B.
12	J–1077/U (if stored in assemblage).	Remove corrosion from binding posts	Para 4–1*c*.
13	Chair and chair cushion	*a.* Repair or replace chair if parts are bent, broken, or if chair is unsafe for use.	None.
		b. Repair or replace cushion that is torn, cut, or has seams split or exposed padding.	None.
14	Axe and sledgehammer	Replace if handle is broken or split, or does not fit head tightly	None.
15	Ladder	*a.* Paint blistered, pitted or flaking areas and bare metal spots	*a.* Para 4–1*d*.
		b. Repair or replace if steps, frame, or parts are bent or broken, or if ladder is unsafe for use.	*b.* None.

4–5. Troubleshooting

a. General. The symptoms in the troubleshooting chart (*b* below) are based on the operational checks in the operator's daily preventive maintenance checks and services chart (para. 4–2). To troubleshoot the AN/MGC–9A, perform all functions starting with sequence No. 15 in the operator's daily preventive maintenance checks and services chart and proceed until an abnormal condition is observed. When an abnormal condition is observed, note the sequence number and refer to the corresponding item number in the troubleshooting chart (*b* below). Perform the checks and corrective measures indicated. If the corrective measures do not result in correction of the trouble, higher category of maintenance is required.

b. Troubleshooting Procedures.

Item No.	*Symptom*	*Probable trouble*	*Corrective measure*
15	*a.* No indication on voltmeter	(1) Defective power cable	(1) Check power cable and repair if necessary (para 4–11).
		(2) Defective receptacle J1	(2) Check receptacle J1 and replace if necessary (para 4–11).
		(3) Defective M1	(3) Check meter M1 and replace if necessary (para 4–6).
		(4) Power source not connected	(4) Check power source.
	b. Voltmeter indicates abnormally high or low.	Defective power source	Check power source (para 2–14).
		Defective voltmeter M1	Check meter M1 and replace if necessary (para 4–6).
	c. POWER ON INDICATOR does not light.	Defective lamp DS8	Check lamp DS8 and replace if necessary.
16	LIGHTS indicator lamp does not light.	*a.* Defective lamp DS1	*a.* Check lamp DS1 and replace if necessary.
		b. Defective circuit breaker CB1 (or tripped).	*b.* Check circuit breaker CB1 and replace if necessary (para 4–8).
17	Fluorescent ceiling lights do not light	*a.* Defective lamp DS11 through DS21.	*a.* Check and replace as required.
		b. Defective fluorescent starter	*b.* Check and replace as required.
		c. Defective switch	*c.* Check and replace as required.
		d. Defective ballast	*d.* Check and replace as required.
		e. Defective blackout bypass switch	*e.* Check and replace as required.
18	Ceiling lights do not light with door open and BLACKOUT BY-PASS switch at OFF.	Defective switch	Check switch and replace if necessary (para 4–9).
19	BLOWER indicator does not light	*a.* Defective lamp	*a.* Check lamp and replace as necessary.
		b. Defective circuit breaker CB6	*b.* Check circuit breaker and replace as necessary (para 4–8).
20	BLOWER does not operate when BLOWER switch is at ON.	*a.* Defective switch	*a.* Check switch and replace if necessary (para 4–9).
		b. Defective BLOWER	*b.* Check BLOWER and repair if necessary (para 4–7).
		c. Defective outlet	*c.* Check outlet and replace if necessary.
		d. Blower plug not connected to outlet receptacle.	*d.* Check plug insertion.
21	HEATER 1 indicator lamp does not light.	*a.* Defective lamp DS3	*a.* Check lamp and replace if necessary.
		b. Defective circuit breaker CB3	*b.* Check circuit breaker and replace if necessary (para 4–8).
22	*a.* No air is expelled from heater	(1) Defective outlet J10	(1) Check outlet and replace if necessary.
		(2) Defective power cord	(2) Check power cord and replace if necessary (fig. 4–2).
		(3) HEAT-OFF-FAN switch is defective.	(3) Check switch and replace if necessary (fig. 4–2).
		(4) Heater plug not connected	(4) Check plug insertion.
	b. Air is not heated	(1) TEMPERATURE CONTROL switch defective.	(1) Check switch and replace if necessary (fig. 4–2).

Item No.	Symptom	Probable trouble	Corrective measure
		(2) Heating element defective	(2) Check heating element and replace if necessary (fig. 4–2).
23	CONVENIENCE indicator lamp does not light.	*a.* Defective lamp DS5	*a.* Check lamp and replace if necessary.
		b. Defective circuit breaker CB5	*b.* Check circuit breaker and replace if necessary (para 4–8).
24	EQUIPMENT indicator lamp does not light.	*a.* Defective lamp DS2	*a.* Check lamp and replace if necessary.
		b. Defective circuit breaker CB2	*b.* Check circuit breaker and replace if necessary (para 4–8).
25	HEATER 2 indicator lamp does not light.	*a.* Defective lamp DS7	*a.* Check lamp and replace if necessary.
		b. Defective circuit breaker CB7	*b.* Check circuit breaker and replace if necessary (para 4–8).
26	*a.* No air is expelled from heater	(1) Defective outlet J17	(1) Check outlet and replace if necessary.
		(2) Defective power cord	(2) Check power cord and replace if necessary (fig. 4–2).
		(3) HEAT-OFF-FAN switch is defective.	(3) Check switch and replace if necessary (fig. 4–2).
		(4) Heater plug not connected	(4) Check plug insertion.
	b. Air is not heated	(1) TEMPERATURE CONTROL switch defective.	(1) Check switch and replace if necessary (fig. 4–2).
		(2) Heating element defective	(2) Check heating element and replace if necessary (fig. 4–2).
27	AIR COND indicator lamp does not light.	*a.* Defective lamp	*a.* Check lamp and replace if defective.
		b. Defective circuit breaker switch	*b.* Check switch and replace if defective (para 4–8).
28	Air conditioner does not function properly in one or more positions of the OFF-FAN-COOL switch.	Defective switch and/or air conditioner unit.	Refer to higher maintenance category.
29	TH–22/TG and TT–98/FG switch panel indicator lamps do not light.	*a.* Defective indicator lamps	*a.* Check lamps and replace if defective.
		b. Defective ON-OFF switches	*b.* Replace if defective.

4–6. Heater Repairs and Blower Replacement

a. Heater Removal (fig. 4–2 and 4–5).

(1) Remove the heater from the mounting base (fig. 4–2) and remove the cover plates to provide access to the interior of the heater.

(2) Refer to figures 4–4 and 5–2 for circuit details.

(3) Replcce defective parts as required (app D).

(4) Replace cover plates and reinstall unit to its mounting.

b. Blower Removal (fig. 4–3 and 4–4).

(1) Operate the BLOWER switch to OFF.

(2) Disconnect the power connector from the BLOWER receptacle.

(3) Remove the outer cover of the blower housing from front, exterior wall of assemblage, by removing the 12 screws that secure the cover to the housing.

(4) Remove the two clamps holding the rubber exhaust duct.

(5) Remove the four bolts from the wall brace that secure the blower. Remove blower.

c. Blower Disassembly.

(1) Place removed blower on a bench and remove the four bolts that secure motor to motor mounting.

(2) Remove six screws holding wire box to motor.

(3) Remove six screws that secure inlet ring to the housing and remove inlet ring.

(4) Remove two setscrews holding fan to motor shaft and remove fan.

(5) Remove four screws holding motor to housing and remove motor from housing.

d. Blower Reassembly.

(1) Align blower housing with blower motor and secure housing to motor with four screws.

(2) Slide fan onto motor shaft and secure with two setscrews.

(3) Position inlet ring to housing and secure with six screws.

(4) Secure motor wire box to motor with six screws.

(5) Bolt motor to motor mount with four bolts.

e. Blower Installation.

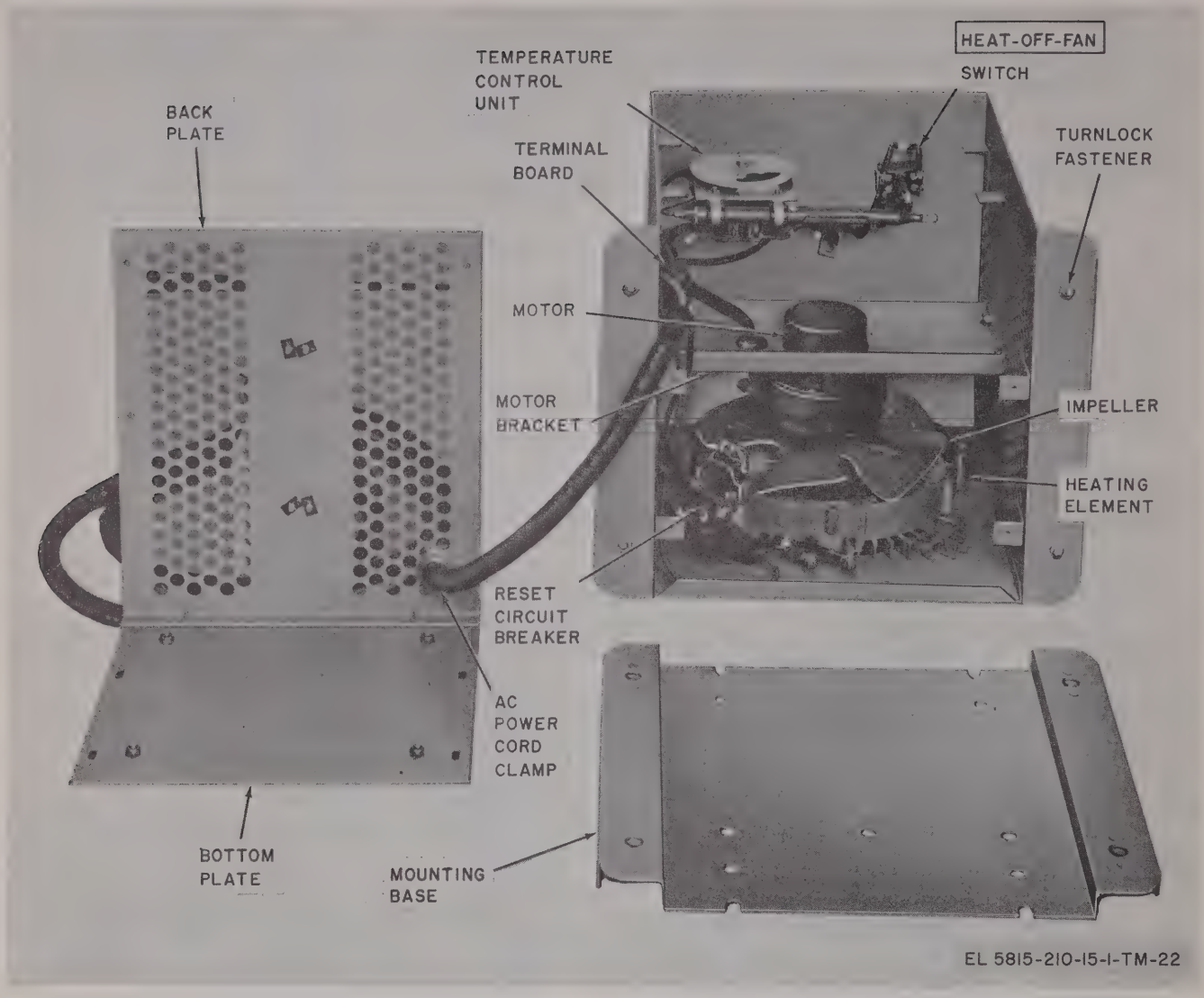


Figure 4–2. Electrical heater, parts location diagram.

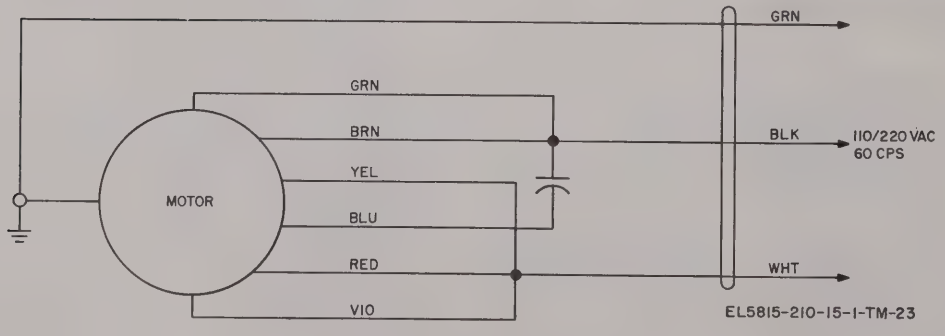


Figure 4–3. Exhaust blower, schematic wiring diagram.

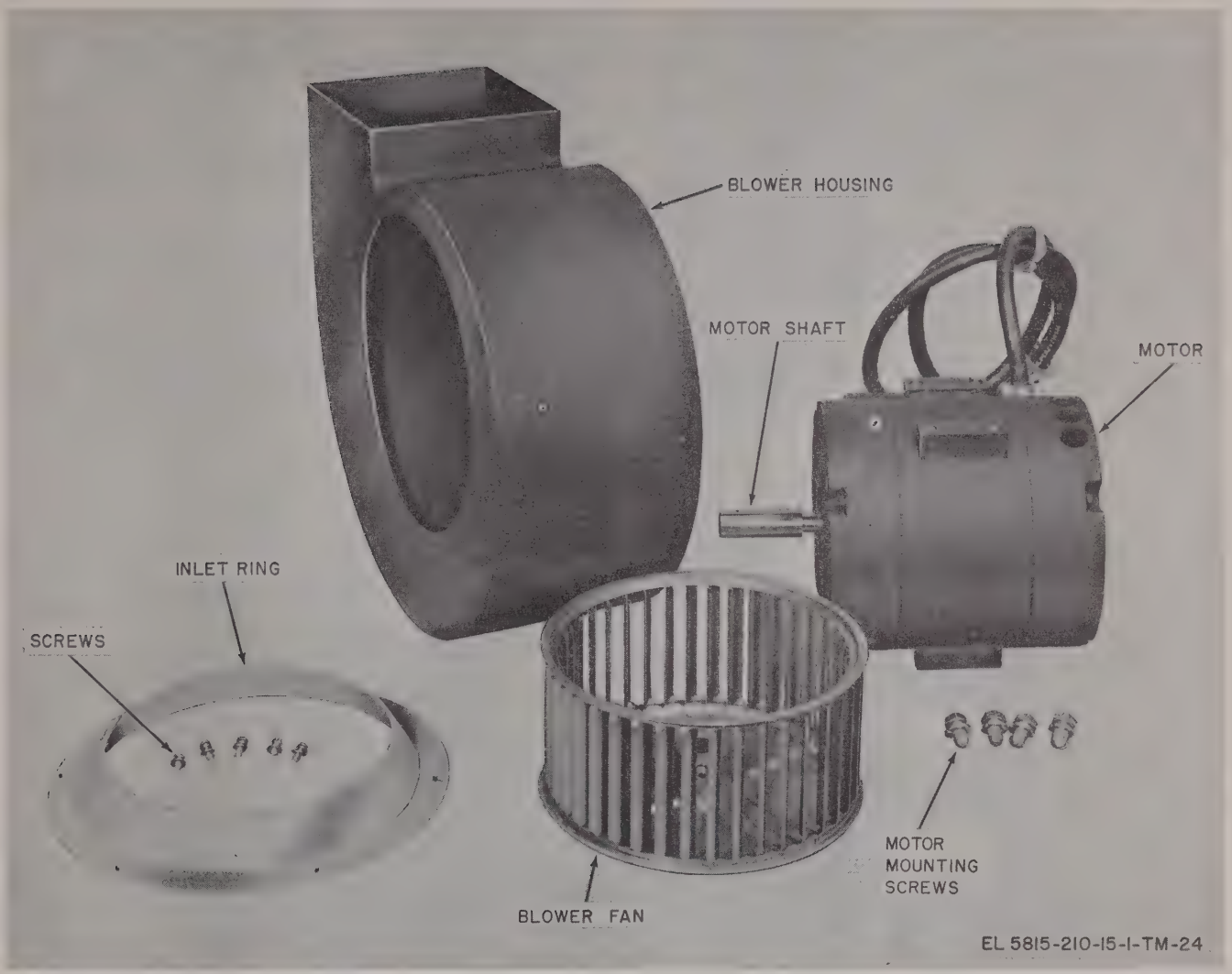


Figure 4–4. Blower parts identification.

(1) Place new or repaired blower in position in blower housing and secure assembly with four bolts.

(2) Secure rubber exhaust duct in place with two clamps.

(3) Replace outer cover of housing and secure with 12 screws.

(4) Install power plug of blower in BLOWER receptacle.

(5) Operate the BLOWER switch to ON.

4–7. Power Distribution Panel Repair

(fig. 2–2 and 5–2)

WARNING

Before performing any repairs on the POWER DISTRIBUTION PANEL, disconnect the ac power cable from the POWER 115V AC IN receptacle of the POWER ENTRANCE BOX.

a. Preliminary Procedures. Remove the screws that secure the cover to the POWER DISTRIBUTION PANEL and remove the cover before performing the procedures given in *b* through *d* below.

b. Removal and Replacement Circuit Breakers.

(1) Grasp the defective circuit breaker and pull it straight out from the retaining clips on the panel.

(2) Disconnect the wires connected to the circuit breakers.

(3) Connect the wires to the appropriate terminals of the replacement circuit breaker.

(4) Position the circuit breaker in the panel and firmly press it into the retaining clips.

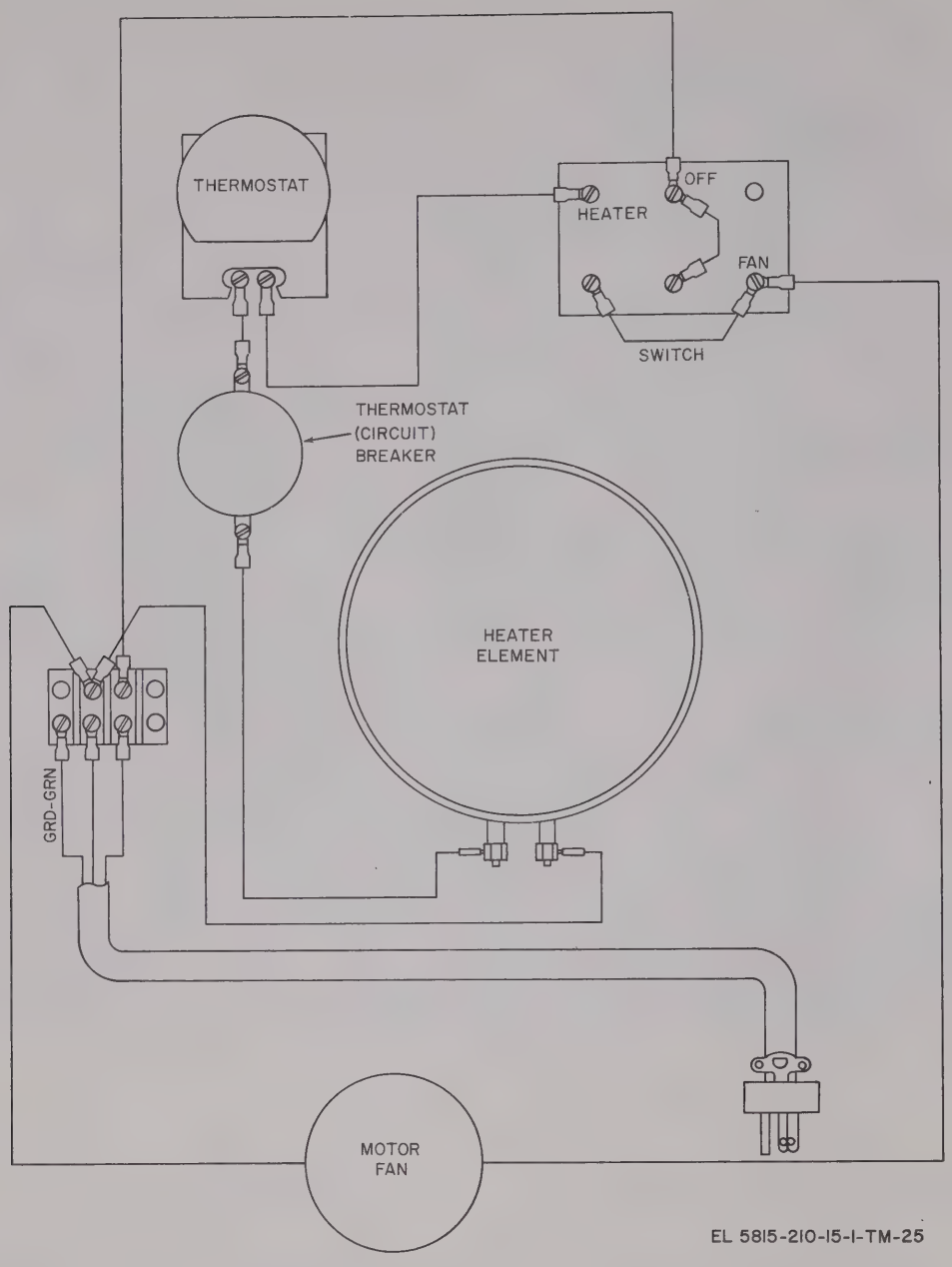


Figure 4–5. Electrical heater, schematic wiring diagram.

c. Removal and Replacement of Current Transformer.

(1) Remove the nuts and washers that secure the transformer to the box.

(2) Tag and disconnect the black and white leads of the transformer from the ammeter terminals.

NOTE

Count the number of turns of heavy black wire through the center hole of the current transformer before proceeding.

(3) Disconnect the black wire wound around the current transformer from the MAIN circuit breaker and carefully unwind the wire.

CAUTION

Be sure that the number of turns of black wire around the replacement current transformer is the same as that of the original transformer.

(4) Wind the black wire around the replacement current transformer.

(5) Reconnect the black wire to the MAIN circuit breaker.

(6) Position the current transformer inside the panel and secure it with the retaining nuts and washers.

(7) Connect the black and white transformer leads to the appropriate terminals of the ammeter.

d. Removal and Replacement of Meters.

(1) Tag and disconnect the leads from the meter terminals.

(2) Remove the retaining screws, nuts, and washers and lift out the meter.

(3) Position the replacement meter in the panel and secure it with the retaining bolts.

(4) Connect the leads to the appropriate terminals of the new meter.

4–8. Replacement of the Switches

a. Operate the appropriate circuit breaker (fig. 2–2) to OFF.

b. Loosen the screws in the brackets at each end of the switch.

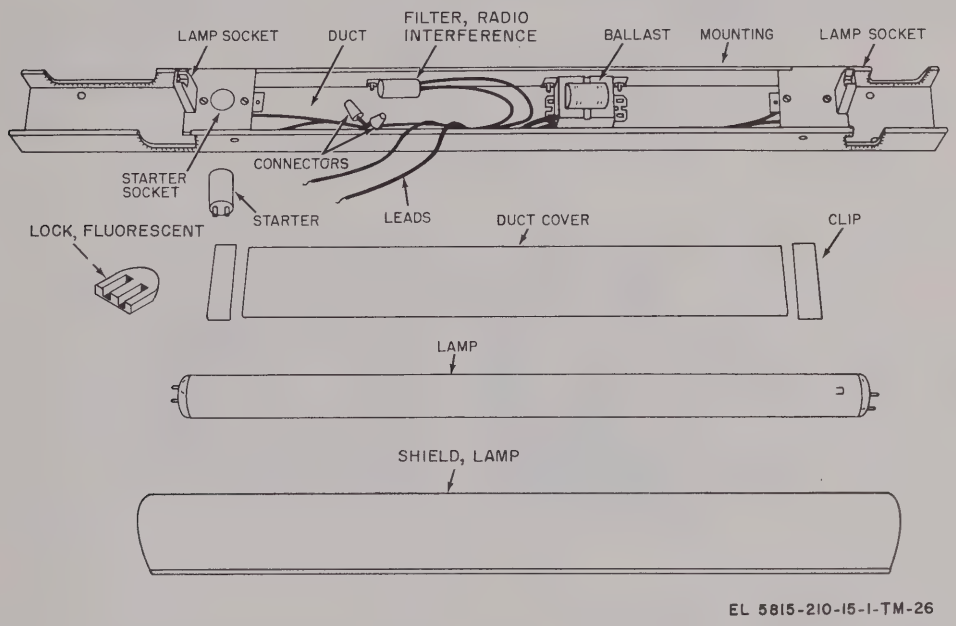


Figure 4–6. Fluorescent light fixture, parts location diagram.

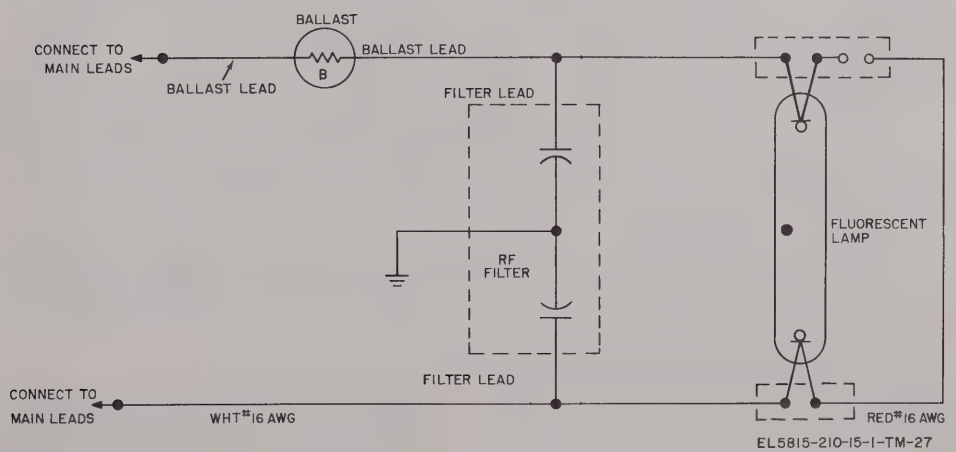


Figure 4–7. Fluorescent light fixture, schematic wiring diagram.

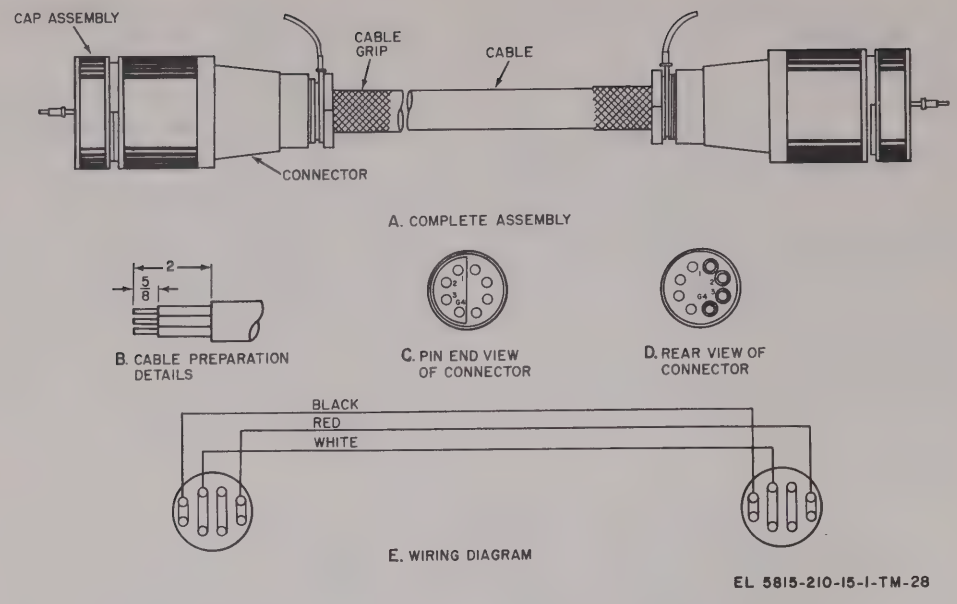


Figure 4–8. Power cable repair details.

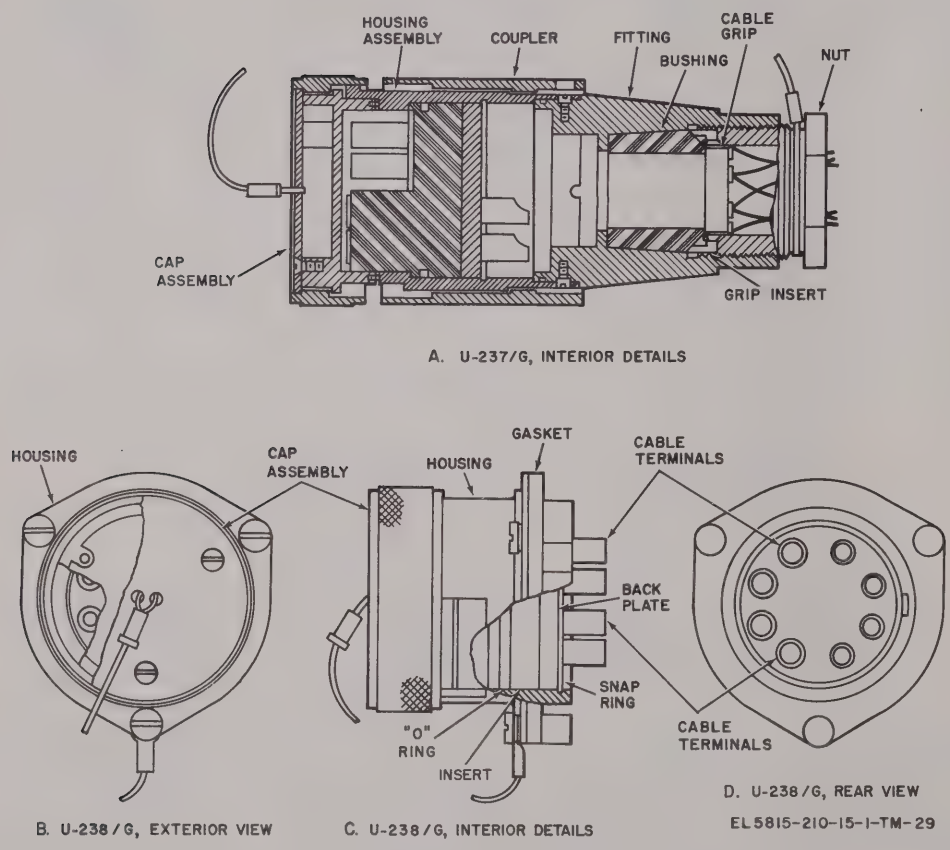


Figure 4–9. Power connectors, assembly details.

c. Remove the brackets and the switchplate.

d. Remove the switch mounting screws and the switch.

e. Remove the wires from the switch and connect them to the new switch in their respective locations.

f. Position the new switch and secure it with the switch mounting screws.

g. Replace and secure the switchplate and the brackets.

4–9. Fluorescent Light Fixture Repair
(fig. 4–6)

a. Turn OFF the switch controlling the defective light.

b. Remove the shield, the lamp lock and lamp.

c. Remove the clips and lift off the wiremold cover.

d. Refer to figure 4–7 for circuit details.

e. Replace parts as required (app D).

4–10. Replacement of Power Connectors and Receptacles
(fig. 4–9)

a. Power Receptacles.

(1) Disconnect the ac power cable from the POWER ENTRANCE BOX.

(2) Remove the rear cover from the POWER ENTRANCE BOX.

(3) Unsolder the wires from the defective receptacle and remove the receptacle. (Note wire connections below.)

Wire color	*Connector terminals*
Black	4
White	2
Green	T–4

(4) Install the replacement receptacle, connect the wires, and replace the rear cover.

(5) Connect the power cable in the POWER ENTRANCE BOX.

b. Power Connectors. Refer to figure 4–9 for details of removal and replacement.

Section II. DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

4–11. Scope of Direct and General Support Maintenance

Direct and general support maintenance duties are indicated in appendix C. The parts authorized for replacement are indicated in appendix D. Replacement procedures for connectors mounted on the connector signal entrance boxes and attached to the 26-pair cables are covered in paragraph 4–12.

4–12. Replacement of SIGNAL 2 Through 5 SIGNAL ENTRANCE BOX Receptacles
(fig. 4–10)

a. Removal.

(1) Remove the screws and remove the cover from the rear of the appropriate SIGNAL 2 through 5 SIGNAL ENTRANCE BOX (fig. 2–8).

(2) Remove the cover from the defective 26-pair receptacle.

(3) Lift the receptacle insert out of the housing; tag and unsolder the wires.

(4) Remove the mounting screws and remove the housing.

b. Replacement.

(1) Position the housing and secure it to the SIGNAL 2 through 5 SIGNAL ENTRANCE BOX (fig. 2–8).

CAUTION

Be extremely careful when connecting and soldering wires to the receptacle insert. Excessive heat or pressure will damage receptacle insert.

(2) Slide the end of the cable form out through the housing and connect the wires to the receptacle insert.

CAUTION

Be careful not to damage the wires when replacing the receptacle insert mounting screws.

(3) Secure the cable form by fastening the cable clip.

(4) Install the cover on the housing.

(5) Position and secure the rear cover on the SIGNAL 2 through 5 SIGNAL ENTRANCE BOX.

4–13. Replacement of 26-Pair Cable Connectors
(fig. 4–11)

a. Removal.

(1) Loosen the setscrews and slide the locking ring back on the cable.

(2) Remove the clamping bolts and clamp nuts from the cable clamp.

(3) Remove the retaining bolts and both sections of the cable clamp.

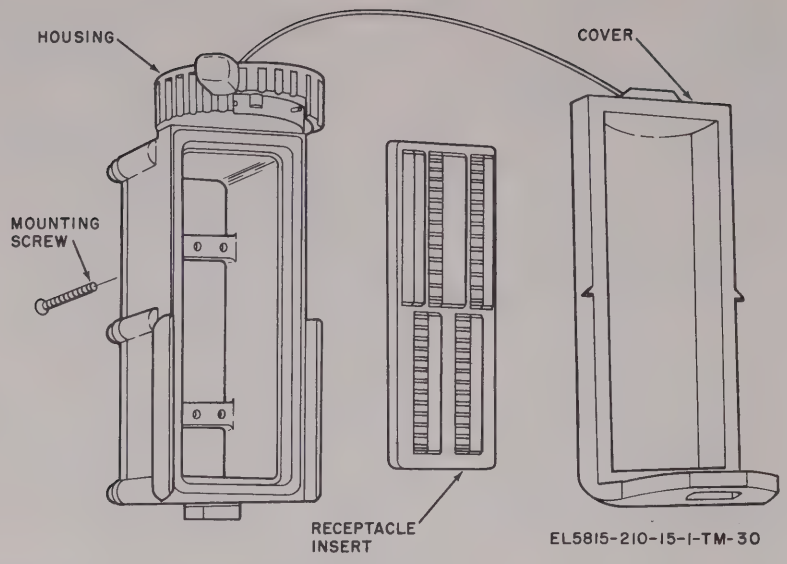


Figure 4–10. Signal entrance box receptacle, disassembly diagram.

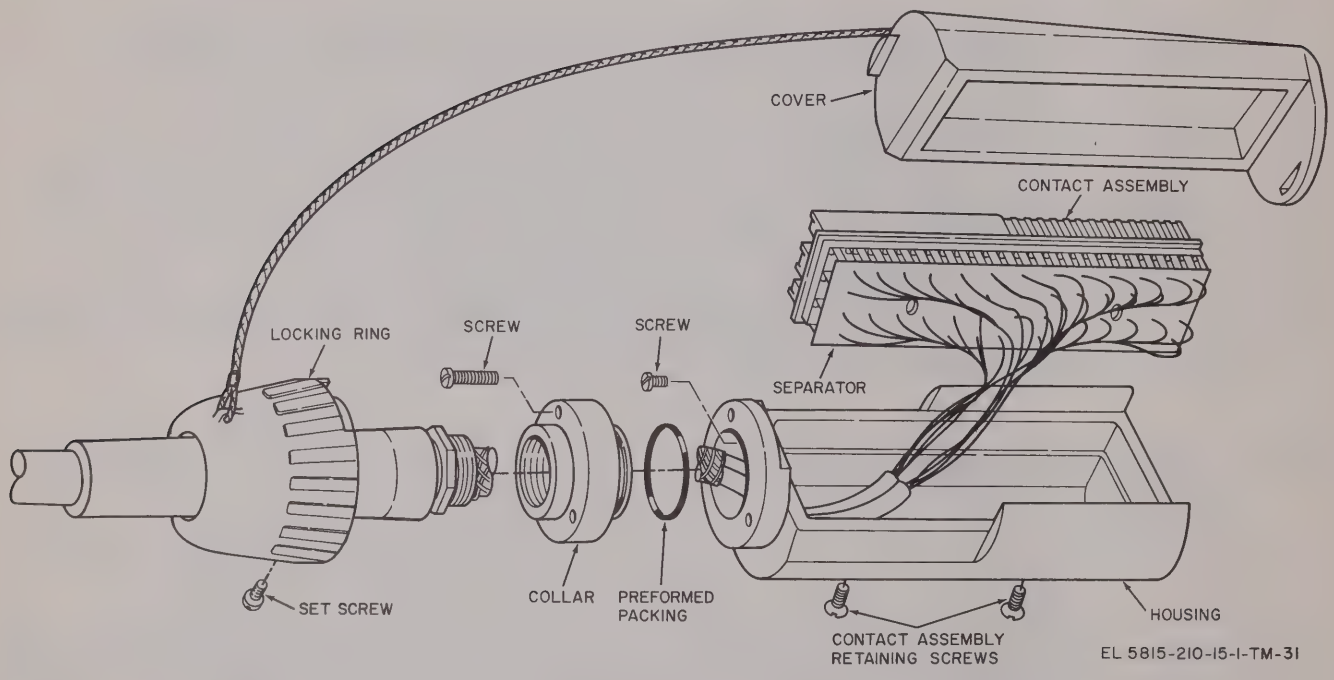


Figure 4–11. 26-Pair cable connector, exploded view.

(4) Slide the enforcement and nylon insulator back on the cable.

(5) Remove the contact assembly retaining screws.

(6) Work the cable into the housing and lift the contact assembly out of the housing.

(7) Slide the separator away from the contact assembly.

(8) Tag and disconnect the leads.

(9) Remove the separator and slide the housing off the cable.

(10) Slide the nylon insulator, enforcement, locking ring, and cover off the cable.

b. Replacement.

(1) Slide the cover, locking ring, enforcement, and nylon insulator on the cable. Be sure the flange on the enforcement and nylon insulator is toward the cable end.

(2) Slide the housing on the cable.

(3) Install the separator with the leads properly positioned.

(4) Position the contact assembly near the housing and connect the leads.

(5) Replace the contact assembly in the housing. If necessary, work the cable out of the housing to provide clearance for the contact assembly.

(6) Be sure the contact assembly is properly seated and secure it to the housing with the contact assembly retaining screws.

(7) Slide the nylon insulator until its flange is flush against the housing.

(8) Slide the enforcement until its flange is flush against the nylon insulator.

(9) Replace the sections of the cable clamp and secure them with the retaining bolts.

(10) Replace the clamping bolts and nuts and tighten them securely.

(11) Slide the locking ring into position on the housing and secure it with the setscrew.

(12) Replace the cover.

4–14. Depot Maintenance

Depot maintenance of the AN/MGC–9A includes major repair and overhaul of the equipment components and the shelter facility. Refer to the applicable technical manual for the individual equipment components for depot overhaul standards and procedures.

CHAPTER 5

SHIPMENT, LIMITED STORAGE, AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

5–1. Disassembly of Equipment

Perform the following procedures when the AN/MGC–9A is to be moved to a different location or placed in storage.

a. Turn off all equipment power switches and circuit breakers except the FLUORESCENT LIGHT switches and the LIGHTS and MAIN circuit breakers.

b. Remove the batteries from all battery operated equipments for prolonged storage or for long distance shipment.

c. Place all miscellaneous items in storage drawers and cabinets and secure the drawers and cabinets for transit.

d. Secure all components in their cases, racks, mountings, or holders.

e. Disconnect the field wires from the binding posts in the power and signal entrance boxes.

f. Disconnect the 26-pair cables from the signal entrance boxes. Replace the covers on all connectors and receptacles. Close and secure the covers on the signal entrance boxes.

g. If power was obtained from a generator set, proceed as follows:

(1) Stop the generator set.

(2) Disconnect the power cable from the POWER 115V AC IN receptacle on the power entrance box. Replace both connector covers.

(3) Disconnect the power cable from the generator set. If the power stub was used, disconnect it from the power cable. Replace the covers, wind the cable on the cable reel, and store the cable stub in a storage drawer.

h. If power was obtained from a commercial power source, proceed as follows:

(1) Turn off or disconnect the power.

(2) Disconnect the power cable from the POWER 115V AC IN receptacle on the power entrance box.

(3) Disconnect the power cable stub from the power source and from the power cable. Replace the covers, and wind the power cable on the cable reel. Store the cable stub in a drawer.

i. Disconnect the ground strap from the GROUND TERMINAL in the power entrance box. Close and secure the cover on the power entrance box.

j. Disconnect the ground strap from the generator set (if used) and from the ground rods. Store the ground straps in the storage cabinets.

k. Close and secure the cover on the blower vent and the air filter on the door.

l. Remove the ground rod and secure it, as shown in figure 5–1.

m. Secure the power cable reel and the personnel ladder as shown in figure 5–1.

n. Recheck the area for loose items. If a generator set was used to supply power, prepare it for shipment or limited storage as described in the appropriate technical manual.

o. Clean the shelter facility thoroughly. Make sure that the drain plug is closed tightly.

p. Close and lock the shelter door.

q. If the AN/MGC–9A is truck mounted, secure the tailgate in the upright position.

5–2. Repackaging for Shipment or Limited Storage

Repackaging of the AN/MGC–9A for shipment or limited storage normally will be performed at a packaging facility or by a packaging team. Should emergency packaging be required, select materials from those listed in SB 38–100. Package the assemblage in accordance with the original packaging so far as possible with available materials.

Section II. DEMOLITION TO PREVENT ENEMY USE

5-3. Authority for Demolition

Demolition of the equipment will be accomplished only upon order of the commander. Use the destruction procedures outlined in paragraph 5-4 to prevent further use of the equipment.

5-4. Methods of Destruction

Use any or all of the following methods to destroy the AN/MGC-9A.

a. Smash. Smash the controls, tubes, coils, relays, switches, capacitors, transformers, and meters.

b. Cut. Cut all cables and cords and slash the wiring of all components.

WARNING

Be extremely careful when handling explosives and incendiary devices. Use these items only when need is urgent.

c. Burn. Burn cords and technical manuals.

d. Bend. Bend panels, components, and cabinets.

e. Explode. Use explosives, if necessary.

f. Dispose. Bury or scatter the destroyed parts in slit trenches or foxholes, or throw them into streams or lakes.

5-5. Destruction of Spare Parts

Use the same methods outlined in paragraph 5-4 to destroy all spare parts.

5-6. Reporting Equipment Destruction

A report of the destruction of equipment will be made through command channels.

Figure 5-1. Central office, teletypewriter, AN/MGC-9A, elevations diagram.

(Located in Back of Manual)

Figure 5-2. AN/MGC-9A, power schematic wiring diagram.

(Located in Back of Manual)

Figure 5-3. AN/MGC-9A, signal schematic wiring diagram.

(Located in Back of Manual)

APPENDIX A

REFERENCES

Following is a list of applicable references which are available to the repairman of Central Office, Teletypewriter AN/MGC–9A:

DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310–7	U.S. Army Equipment Index of Modification Work Orders.
SB 11–573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
TB 746–10	Field Instructions for Painting and Preserving Electronics Command Equipment.
TB 750–240	Maintenance and Repair Procedures for S–141/G-, S–144/G-, S–250/G-, S–280/G-, and S–318/G-type shelters.
TM 9–213	Painting Instructions for Field Use.
TM 11–2134	Manual Telephone Switchboard SB–86/P; Installation and Operation.
TM 11–4134	Manual Telephone Switchboard SB–86/P, Field Maintenance.
TM 11–5805–201–12	Operator and Organizational Maintenance Manual Including Repair Parts and Special Tool Lists: Telephone Set TA–312/PT.
TM 11–5805–201–35	DS, GS, and Depot Maintenance Manual Including Repair Parts and Special Tool Lists: Telephone Set TA–312/PT.
TM 11–5805–201–35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Telephone Set TA–312/PT.
TM 11–5805–304–20P	Organizational Maintenance Repair Parts and Special Tools List: Switchboard, Telephone, Manual SB–86/P.
TM 11–5805–304–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Switchboard, Telephone, Manual SB–86/P.
TM 11–5805–356–12	Operator and Organizational Maintenance Manual Including Repair Parts and Special Tool Lists: Terminal, Telegraph-Telephone AN/TCC–29 (Including Terminal, Telegraph TH–22/TG and Converter, Telegraph-Telephone Signal CV–425/U).
TM 11–5805–356–35	DS, GS, and Depot Maintenance Manual (Including Repair Parts and Special Tool Lists): Terminal Telegraph-Telephone AN/TCC–29 (Including Terminal, Telegraph TH–22/TG and Converter, Telegraph-Telephone Signal CV–425/U).
TM 11–5815–200–12	Organizational Maintenance Manual Including Repair Parts and Special Tools List: Teletypewriter Sets AN/FGC–20, AN/FGC–20X, AN/FGC–21, AN/FGC–64, AN/FGC–66, AN/FGC–67, AN/FGC–67X, AN/UGC–4, AN/UGC–29, AN/UGC–29X, and Teleprinter TT–259/FG.

TM 11–5815–200–35	DS, GS, and Depot Maintenance Manual: Teletypewriter Sets AN/FGC–20, AN/FGC–20X, AN/FGC–21, AN/FGC–64, AN/FGC–66, AN/FGC–67, AN/FGC–67X, AN/UGC–4, AN/UGC–29, AN/UGC–29X, and Teleprinter TT–259/FG.
TM 11–5815–200–35P/2	DS, GS, and Depot Maintenance Repair Parts and Special Tools Lists: Teletypewriter Sets AN/FGC–20X and AN/UGC–4.
TM 11–5830–221–12	Operator's and Organizational Maintenance Manual: Intercommunication Stations LS–147A/FI, LS–147B/FI, LS–147C/FI, and LS–147D/FI.
TM 11–5830–221–20P	Organizational Maintenance Repair Parts and Special Tools List: Intercommunication Stations LS–147A/FI, LS–147B/FI, LS–147C/FI, and LS–147D/FI.
TM 11–5830–221–35	Field and Depot Maintenance Manual: Intercommunication Stations LS–147A/FI, LS–147B/FI, LS–147C/FI, and LS–147D/FI.
TM 11–5830–221–35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Intercommunications Stations LS–147A/FI, LS–147B/FI, LS–147C/FI, and LS–147D/FI.
TM 11–5935–205–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Connectors, Receptacle, Electrical U–187/G and U–187A/G.
TM 11–5965–206–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List: Headset-Microphone H–91/U, H–91A/U, Handset-Headset, H–144/U, H–144A/U, H–144B/U, H–144C/U, and Headset-Microphone H–210/G.
TM 11–5965–224–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Handsets H–60/PT and H–165/U.
TM 11–5965–271–50	Depot Maintenance Manual: Handsets TS–9–(*), TS–10–(*), TS–11–(*), TS–12–F, TS–13–(*), TS–14–(*), TS–15–(*), H–22–B/U, H–23–(*)/U and H–60/PT.
TM 11–6110–201–15P	Operator, Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tools List: Distribution Box J–1077/U and J–1077A/U.
TM 11–6115–230–15	Operator, Organizational, Field and Depot Maintenance Manual: Generator Set, Gasoline Engine, Trailer Mounted PU–474/M.
TM 11–6115–230–25P	Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Generator Set, Gasoline Engine, Trailer Mounted PU–474/M.
TM 11–6625–203–12	Operator and Organizational Maintenance: Multimeter AN/URM–105, Including Multimeter ME–77/U.
TM 38–750	The Army Maintenance Management Systems (TAMMS).

APPENDIX B

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists items which accompany the AN/MGC-9A or are required for installation, operation, or operator's maintenance.

B-2. General

This Basic Issue Items List is divided into the following sections:

a. Basic Issue Items—Section II. A list of items which accompany the AN/MGC-9A and are required by the operator/crew for installation, operation, or maintenance.

b. Maintenance and Operating Supplies—Section III. Not applicable.

B-3. Explanation of Columns

The following provides an explanation of columns in the tabular list.

a. Source, Maintenance, and Recoverability Codes (SMR), Column 1.

(1) Source code indicates the selection status and source for the listed item. Source codes are—

Code — *Explanation*

P—Repair parts which are stocked in or supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.

P2—Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.

P9—Assigned to items which are NSA design controlled: unique repair parts, special tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC logistic system, and which are not subject to the provisions of AR 380-41.

P10—Assigned to items which are NSA design controlled: special tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied by the Army COMSEC logistic system.

M—Repair parts which are not procured or stocked, but are to be manufactured in indicated maintenance levels.

A—Assemblies which are not procured or stocked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately, and can be assembled to form the required assembly at indicated maintenance categories.

X—Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of the applicable end item or component. The failure of such part or assembly should result in retirement of the end item from the supply system.

X1—Repair parts which are not procured or stocked. The requirement for such items will be filled by use of the next higher assembly or component.

X2—Repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain same through cannibalization. Where such repair parts are not obtainable throug cannibalization, requirements will be requisitioned with accompanying justification, through normal supply channels.

Code	*Explanation*
C	Repair parts authorized for local procurement. Where such repair parts are not obtainable from local procurement, requirements will be requisitioned through normal supply channels accompanied by a supporting statement of nonavailability from local procurement.
G	Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DS and GS level or returned to depot supply level.

(2) Maintenance code indicates the lowest category of maintenance authorized to install the listed item. The maintenance level codes are—

Code	*Explanation*
C	Operator/crew
O	Organizational Maintenance

(3) Recoverability code indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are—

Code	*Explanation*
R	Repair parts and assemblies that are economically repairable at DSU and GSU activities and are normally furnished by supply on an exchange basis.
S	Repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T	High dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance activities.
U	Repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high dollar value reusable casings or castings.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description, Column 3. This column indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M), Column 4. A two-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit, Column 5. This column indicates the quantity of the item used in the AN/MGC-9A.

f. Quantity Furnished With Equipment, Column 6. This column indicates the quantity of an item furnished with the equipment.

g. Illustration, Column 7. Not applicable.

B-4. Explanation of Columns in the Tabular List of Maintenance and Operating Supplies—Section III

Not applicable.

B-5. Special Information

Dry batteries shown are used with the equipment but are not considered part of the equipment. They will not be preshipped automatically but are to be requisitioned in quantities necessary for the particular organization, in accordance with SB 11-6.

SECTION II. BASIC ISSUE ITEMS

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS (a) FIG. NO.	(7) ILLUSTRATIONS (b) ITEM NO. OR REFERENCE DESIGNATION
	5815-878-4618	CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9A (This item is nonexpendable)					
		TM 11-5815-210-15-1	EA	1	1		
		A quantity of one technical manual is packed with each equipment. Where a valid need exists, additional copies may be requisitioned and kept on hand.					
		TECHNICAL BULLETIN TB 750-240	EA	1	1		
P-C	5805-985-9088	CONVERTER, TELEGRAPH-TELEPHONE SIGNAL CV-425/U	EA	4	4		
P-C	6115-738-6337	GENERATOR SET, GASOLINE ENGINE, TRAILER MOUNTED PU-618/M (Used with, not part of)	EA	1	1		
P-C		SHELTER, ELECTRICAL EQUIPMENT S-368/MGC-9A	EA	1	1		
P-C	5805-503-2616	SWITCHBOARD, SIGNAL ASSEMBLY TA-207/P	EA	2	2		
P-C	5805-503-2660	SWITCHBOARD, TELEPHONE, MANUAL SB-86/P (Less case)	EA	2	2		
P-C	5805-543-0012	TELEPHONE SET TA-312/PT (Less case)	EA	3	3		
P-C	5815-503-2764	TELETYPEWRITER TT-98/FG	EA	2	2		
P-C	5805-907-8300	TERMINAL, TELEGRAPH TH-22/TG	EA	2	2		
		"OPERATOR/CREW REPAIR PARTS, ACCESSORIES, TOOLS, AND TEST EQUIPMENT"					
		SHELTER, ELECTRICAL EQUIPMENT S-368( )/MGC-9A					
P-C-R	4120-679-2669	AIR CONDITIONER: F9000 (Used with, not part of) (94833)	EA	1	1		
P-C	5110-115-5049	AXE, SINGLE BIT: SC-C-539451 (80063)	EA	1	1		
P-C	7520-926-4726	BASKET, WASTEPAPER: SC-D-539454 (80063)	EA	2	2		
P-C	6135-120-1020	BATTERY, DRY BA-30 (For lantern)	EA	4			
P-C	6135-850-3177	BATTERY, 9V DRY: (For clock) 2MN6 (09823)	EA	1			
P-C	4210-288-6849	BRACKET, FIRE EXTINGUISHER: RB-1 (33525)	EA	1	1		
P-C	7920-178-8315	BRUSH, DUSTING, BENCH: SC-C-539469 (80063)	EA	1	1		
P-C	5410-752-2435	CABLE ASSEMBLY AND REEL: (C/o reel, cable RC-435/U and 100 ft power cable CX-7453A/U	EA	1	1		
P-C							
P-C	5995-935-2686	CABLE ASSEMBLY, POWER ELECTRICAL CX-7705A/U: (15 ft power stub)	EA	1	1		
P-C	5995-935-2704	CABLE ASSEMBLY, POWER ELECTRICAL: (4 ft lg) (for air conditioner) (stowed) SC-D-543403GRI (80063)	EA	1			
P-C	5995-823-3016	CABLE ASSEMBLY, TELEPHONE: (6 ft lg: 1 ea PJ.055B one end; terminal lugs other end) SM-D-384145GRI (80063)	EA	2	2		
P-C	5995-889-0608	CABLE ASSEMBLY, TELEPHONE: (6 ft lg: ftty: 1 ea PJ. 055R one end; terminal lugs other end) SM-D-384145GRII (80063)	EA	2	2		
P-C	5995-889-0803	CABLE ASSEMBLY, TELEPHONE CX-4760A/U	EA	1	1		
P-C	7530-071-0808	CARD, VISIBLE FILE ROTARY: 2-1-4344 (89384)	BX	1	1		
P-C	7110-273-8791	CHAIR, ROTARY: (Chen replacing remove mtg bkt f/use on new chair) SC-D-539552 (80063)	EA	3	3		
P-C	7910-832-7222	CLEANER, VACUUM: (stowed) 2800 (29335)	EA	1			
P-C	6645-410-2395	CLOCK, WALL: SC-C-539475 (80063)	EA	1	1		
P-C	5995-179-2923	CORD ASSEMBLY, ELECTRICAL: (1 ft lg) SC-C-564143-GRI (80063)	EA	4	4		

SECTION II. BASIC ISSUE ITEMS (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS (a) FIG. NO.	(7) ILLUSTRATIONS (b) ITEM NO. OR REFERENCE DESIGNATION
P-C	6110-985-7574	DISTRIBUTION BOX J-1077A/U	EA	1	1		
P-C	4210-013-3114	EXTINGUISHER, FIRE: 5T2 (33525)	EA	1	1		
P-C	5120-293-2692	EXTRACTOR, ELECTRON TUBE:	EA	1	1		
P-C	5120-293-2696	EXTRACTOR, ELECTRON TUBE: SC-B-539547 (80063)	EA	1	1		
P-C	7460-989-3218	FILE, VISIBLE, ROTARY: 1024X (89384)	EA	1	1		
P-C	6545-922-1200	FIRST AID KIT, GENERAL PURPOSE: SC-D-539483 (80063)	EA	1	1		
P-C	5120-946-5114	GRIP, CABLE, WOVEN: (Power) SC-B-539593 (80063)	EA	1	1		
P-C	5120-946-5148	GRIP, CABLE, WOVEN: (Signal) SC-B-539592 (80063)	EA	5	2		
P-C	5120-251-4489	HAMMER, HAND: SC-C-539505 (80063)	EA	1	1		
P-C	4520-912-3502	HEATER, SPACE, ELECTRICAL: (Used with, not part of) SC-D-539901 (80063)	EA	2	2		
P-C	5830-752-5357	INTERCOMMUNICATION STATION LS-147D/FI	EA	1	1		
P-C	2540-892-6243	LADDER, VEHICLE, BOARDING MX-3391/G	EA	1	1		
P-C	6240-152-2996	LAMP FLOURESCENT: FC-C-539495 (80063)	EA	10	3		
P-C	6240-223-9100	LAMP, GLOW: NE51 (24446)	EA	9	2		
P-C	6240-635-9753	LAMP, GLOW: NE34 (24446)	EA	1	1		
P-C	6240-143-3070	LAMP, INCANDESCENT: (For extension light) 50W/RS (24446)	EA	1	1		
P-C	6240-155-8653	LAMP, INCANDESCENT: 25T8DC (24446)	EA	8	3		
P-C	6230-729-9614	LANTERN, ELECTRIC: SC-C-539491 (80063)	EA	1	1		
P-C	4940-752-2525	LEAD, ELECTRICAL: SC-B-539492 (80063)	EA	1	1		
P-C	6230-239-3518	LIGHT EXTENSION: SC-C-539496 (80063)	EA	1	1		
P-C	5340-682-1508	PADLOCK: MS35647-3 (96906)	EA	1	1		
P-C	7510-240-1526	PENCIL, GREASE: (Black) (stowed) SSP-196 (81349)	DZ	2			
P-C	7510-436-5210	PENCIL, GREASE: (Blue) (stowed) SSP-196 (81349)	DZ	1			
P-C	7510-275-7212	PENCIL, GREASE: (Green) (stowed) SSP-196 (81349)	DZ	1			
P-C	7510-174-3205	PENCIL, GREASE: (Red) (stowed) SSP-196 (81349)	DZ	1			
P-C	7510-264-4612	PENCIL, GREASE: (Yellow) (stowed) SSP-196 (81349)	DZ	1			
P-C	5120-293-3603	PIN STRAIGHTENER ELECTRON TUBE: SC-B-539472 (80063)	EA	1	1		
P-C	8130-656-1090	REEL, CABLE RC-435/U	EA	1	1		
P-C	5975-224-5260	ROD, GROUND MX-148/G	EA	1	1		
P-C	5120-234-8910	SCREWDRIVER, FLAT TIP: 851 (10266)	EA	1			
P-C	7520-162-6178	SHARPENER, PENCIL: SC-C-539503 (80063)	EA	1			
P-C	5410-999-6022	SHELTER, ELECTRICAL EQUIPMENT S-280B/G	EA	1	1		
P-C	5410-805-5533	SLING, MULTIPLE LEG: SC-D-36423 (80063)	EA	1	1		
P-C	6250-299-2884	STARTER, FLUORESCENT LAMP: SC-B-539504 (80063)	EA	10	5		
P-C	5930-832-8193	SWITCH, THERMOSTATIC: T473B1002 (40931)	EA	1			

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for the AN/MGC-9A. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C-2. Maintenance Functions

Maintenance functions will be limited to and defined as follows:

a. INSPECT. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

b. TEST. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc. This is accomplished with external test equipment and does not include operation of the equipment and operator type tests using internal meters or indicating devices.

c. SERVICE. To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. If it is desired that elements, such as painting and lubricating, be defined separately, they may be so listed.

d. ADJUST. To rectify to the extent necessary to bring into proper operating range.

e. ALIGN. To adjust two or more components or assemblies of an electrical or mechanical system so that their functions are properly synchronized. This does not include setting the frequency control knob of radio receivers or transmitters to the desired frequency.

f. CALIBRATE. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

g. INSTALL. To set up for use in an operational environment such as an encampment, site, or vehicle.

h. REPLACE. To replace unserviceable items with serviceable like items.

i REPAIR. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes, but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

j. OVERHAUL. Normally, the highest degree of maintenance performed by the Army in order to minimize time work in process is consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like new, zero mileage, or zero hour condition.

k. REBUILD. The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other paramount factors and then only at the depot maintenance category. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

l. SYMBOLS. The uppercase letter placed in the appropriate column indicates the lowest level at which that particular maintenance function is to be performed.

C-3. Explanation of Format

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies and modules with the next higher assembly.

b. Column 2, Functional Group. Column 2 lists the noun names of components, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Code	*Maintenance category*
C	Operator/crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

d. Column 4, Tools and Equipment. Column 4 specifies, by code, those tools and test equipment required to perform the designated function. The numbers appearing in this column refer to specific tools and test equipment which are identified in table I.

e. Column 5. Remarks. Self-explanatory.

C-4. Explanation of Format of Table I, Tool and Test Equipment Requirements

The columns in Table I, Tool and Test Equipment Requirements, are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the tools and equipment column of the Maintenance Allocation Chart. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number of the specific tool or test equipment.

e. Tool Number. Not used.

SECTION II. MAINTENANCE ALLOCATION CHART

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
1	CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9A	C		C										Preventive maintenance
				O									3	
			C										6	Operational
			O										6	Test in accordance with
			F										6	component maintenance allocation
			H										6	chart (MAC)
					O								6	Adjust in accordance with
					F								6	component MAC
					H								6	
										C			6	Repair in accordance with
										O			6	component MAC
										F			6	
										H			6	
											H		6	By component
												D	6	Shelter facility only
1A	CONVERTER, TELEGRAPH-TELEPHONE SIGNAL CV-425/U									#				See TM 11-5805-356-12
1B	SHELTER, ELECTRICAL EQUIPMENT S-368/MGC-9A	C		C										Preventive maintenance
				O										
			O										3	Continuity of power, lighting, signal circuits
			H										2	All tests
										O			3	Power, lighting, signal circuits
										F			4,5	Except skid and door
										H			4,5	
												D	4,5	
1B1	BLOWER, EXHAUST		O										1	
									F				3	
										H			3	Replace motor and impeller
1B2	HEATER, ELECTRICAL		O										1	
									F				3	
1B3	INTERCOMMUNICATION STATION LS-147D/FI									#				See TM 11-5830-221-12

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	AN/MCG-9A (cont)													
1C	SWITCHBOARD, TELEPHONE MANUAL SB-86/P									#				See TM 11-2134
1D	TELEPHONE SET TA-312/PT									#				See TM 11-5805-201-12
1E	TELETYPEWRITER TT-98/FG									#				See TM 11-5815-200-12
1F	TERMINAL, TELEGRAPH TH-22/TG									#				See TM 11-5805-356-12
														#Indicates that maintenance guidance will be found in documents referenced in remarks column.

TABLE I. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL AND TEST EQUIPMENT REQUIREMENTS				
TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
		AN/MGC-9A (cont)		
1	O,F,H,D	MULTIMETER TS-352B/U (TO BE REPLACED BY AN/USM-223)	6625-553-0142	
2	H,D	OHMMETER ZM-21M/U	6625-246-5880	
3	O,F	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-610-8177	
4	H,D	TOOL KIT, ELECTRONIC EQUIPMENT, SHELTER TK-144/G	5180-987-4369	
5	F,H,D	TOOL KIT, GENERAL MECHANICS	5180-754-0641	
6	O,F,H,D	TOOLS AND TEST EQUIPMENT ASSOCIATED WITH COMPONENTS OF THIS END ITEM		
		DEPOT MAY USE ANY OTHER EQUIPMENT REQUIRED TO OVERHAUL OR REBUILD THE EQUIPMENT		

APPENDIX D

ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix lists repair parts and special tools required for the performance of organizational, direct support, general support, and depot maintenance of the AN/MGC-9A.

D-2. General

This Repair Parts and Special Tools List is divided into the following sections:

a. Prescribed Load Allowance (PLA)—Section II. A composite listing of repair parts, special tools, test and support equipment having quantitative allowances for initial stockage at the organizational level.

b. Repair Parts for Organizational Maintenance —Section III. A list of repair parts authorized for the performance of maintenance at the organizational level.

c. Special Tools, Test and Support Equipment for Organizational Maintenace—Section IV. Not applicable.

d. Repair Parts for Direct Support, General Support, and Depot Maintenance—Section V. A list of repair parts authorized for the performance of maintenance at the direct support, general support, and depot level.

e. Special Tools, Test and Support Equipment for Direct Support, General Support, and Depot Maintenance—Sdction VI. Not applicable.

f. Index—Federal Stock Number Cross-Reference to Figure and Item Number or Reference Designation—Section VII. Not applicable.

g. Index—Reference Designation Cross-Reference to Page Number—Section VIII. Not applicable.

D-3. Explanation of Columns

The following provides an explanation of columns in the tabular lists:

a. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source code indicates the selection status and source for the listed item. Source codes are—

Code — *Explanation*

P—Repair parts which are stocked in or supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.

P2—Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.

P9—Assigned to items which are NSA design controlled: unique repair parts, special tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC logistic system, and which are not subject to the provisions of AR 380-41.

P10—Assigned to items which are NSA design controlled: special tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied by the Army COMSEC logistic system.

M—Repair parts which are not procured or stocked, but are to be manufactured in indicated maintenance levels.

A—Assemblies which are not procured or stocked as such, but are made up of

Code — *Explanation*

two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately, and can be assembled to form the required assembly at indicated maintenance categories.

X—Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of the applicable end item or component. The failure of such part or assembly should result in retirement of the end item from the supply system.

X1—Repair parts which are not procured or stocked. The requirement for such items will be filled by use of the next higher assembly or component.

X2—Repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain same through cannibalization. Where such repair parts are not obtainable through cannibalization, requirements will be requisitioned, with accompanying justification, through normal supply channels.

G—Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DS and GS level or returned to depot supply level.

(2) Maintenance code indicates the lowest category of maintenance authorized to install the listed item. The maintenance level codes are—

Code	*Explanation*
C	Operator/Crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

(3) Recoverability code indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are—

Code — *Explanation*

R—Repair parts and assemblies that are economically repairable at DSU and GSU activities and are normally furnished by supply on an exchange basis.

Code — *Explanation*

S—Repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.

T—High dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot mainenance activities.

U—Repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high dollar value reusable casings or castings.

b. Federal Stock Number. Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. Indicates the Federal item name and any additional description of the item requied. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M). A two-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based; e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit. Indicates the quantity of the item used in the AN/MGC-9A.

f. 15-Day Organizational Maintenance Allowances.

(1) The allowance columns are divided into four subcolumns. Indicated in each subcolumn opposite the first appearance of each item is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the allowance columns. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

(2) The quantitative allowances for organizational level of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads

will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.

(3) Organizational units providing maintenance for more than 100 of these equipments shall determine the total quantity of parts required by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51–100 allowance column. *Example,* authorized allowance for 51–100 equipments is 12; for 140 equipments multiply 12 by 1.40 or 16.80 rounded off to 17 parts required.

(4) Subsequent changes to allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendation should be forwarded to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL–ME–NMP–EM, Fort Monmouth, N.J. 07703, for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the USA ECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

g. 30-Day DS/GS Maintenance Allowances.

NOTE

Allowances in GS Column are for GS maintenance only.

(1) The allowance columns are divided into three subcolumns. Indicated in each subcolumn, opposite the first appearance of each item, is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the applicable allowance columns. Items authorized for use as required, but not for initial stockage, are identified with an asterisk in the allowance column.

(2) The quantitative allowances for DS/GS levels of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

(3) Determination of the total quantity of parts required for maintenance of more than 100 of these equipments can be accomplished by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51–100 allowance column. *Example,* authorized allowance for 51–100 equipments is 40; for 150 equipments multiply 40 by 1.50 or 60 parts required.

h. 1-Year Allowances Per 100 Equipments/Contingency Planning Purposes. Indicates opposite the first appearance of each item the total quantity required for distribution and contingency planning purposes. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for 1 year.

i. Depot Maintenance Allowance Per 100 Equipments. Indicates opposite the first appearance of each item the total quantity authorized for depot maintenance of 100 equipments. Subsequent appearances of the same item will have the letters "REF" in the allowance column. Items authorized for use as required, but not for initial stockage, are identified with an asterisk in the allowance column.

j. Illustrations. Not applicable.

D–4. Special Information

Repair parts mortality is computed from failure rates derived from experience factors with the individual parts in a variety of equipments. Variations in the specific application and periods of use of electronics equipment, the fragility of electronic piece parts, plus intangible material and quality factors intrinsic to the manufacture of electronic parts, do not permit mortality to be based on hours of end item use. However, long periods of continuous use under adverse conditions are likely to increase repair parts mortality.

D–5. Location of Repair Parts

This appendix does not contain cross-reference indexes. The repair parts lists are arranged in alphabetical order. In order to locate a repair part, scrutinize the list until the repair part is located.

D–6. Federal Supply Code for Manufacturers

Code	*Manufacturer's name*
02777	Hopkins Engineering Co.
06229	Electrovert Inc
09823	Clevite Corp Burgess Battery Division
10266	California Hardware Co
21873	Sensitron Semiconductor Div of Sensitron Inc
24446	General Electric Co
29335	Hoover Co

Code	Manufacturer's name
33525	Kidde Walter and Co Inc
40931	Honeywell Inc
56289	Sprague Electric Co
70674	ADC Products Division of Magnetic Controls Co
72619	Dialight Corp
74545	Hubbell Harvey Inc
79725	Wiremold Co
80064	Army Electronics Command
81349	Military Specifications
81487	Square D Co Industrial Controller Div
83301	Laduby Company
88753	Square D Co
89384	Zephyr American Corp
90211	Square D Co
91929	Honeywell Inc Building Controls and Components Group Micro Switch Div
93993	Midwest Electric Products Inc
94833	Keco Industries Inc
96906	Military Standards

SECTION II. PRESCRIBED LOAD ALLOWANCE

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION USABLE ON CODE	(3) 15-DAY ORG. MAINT. ALLOWANCE			
		(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100
4940-752-2525	LEAD, ELECTRICAL: SC-B-539492 (80063)			2	2
5120-946-5148	GRIP, CABLE, WOVEN: (Signal) SC-B-539592 (80063)			2	2
5340-592-7996	CLIP, RETAINING: N7 (06229)				2
5910-498-8455	CAPACITOR, FIXED, ELECTROLYTIC: F/fan; 3S2950 (56289)				2
5915-116-8916	FILTER, RADIO INTERFERENCE: 591B (02777)			2	2
5925-105-0046	CIRCUIT BREAKER: QO-120 (88753)				2
5925-818-4811	CIRCUIT BREAKER: QO-115 (81487)			2	2
5930-615-7896	SWITCH, TOGGLE: (Mounted on switch panel for TT-98/FG & TH-22/TG) MS25098-22 (96906)				2
5930-865-6101	SWITCH, TOGGLE: 5521-1 (24446)			2	2
5930-944-1086	SWITCH, PUSH: BZ2RQ181T (91929)				2
5935-045-9832	CONNECTOR, RECEPTACLE, ELECTRICAL U-187A/G			2	2
5935-064-5731	CONNECTOR, PLUG, ELECTRICAL U-237B/G (For 100 ft and 15 ft cable assys)			2	2
5935-064-5732	CONNECTOR, RECEPTACLE, ELECTRICAL U-238B/G (Mtd in pwr ent box)			2	2
5935-258-4663	CONNECTOR, RECEPTACLE, ELECTRICAL: (Mounted in switch box assembly for TT-98/FG & TH-22/TG) 5262 (74545)			2	2
5935-642-3652	CONNECTOR, RECEPTACLE, ELECTRICAL: 5261 (74545)				2
5935-686-0274	JACK, TELEPHONE: PJ123 (70674)			2	2
5935-933-3454	CONNECTOR, RECEPTACLE, ELECTRICAL: 5361 (74545)				2
5935-947-1145	JACK, TELEPHONE: PJ117 (70674)				2
5940-254-2244	CAP, ELECTRICAL: (For U-106/U) SC-C-76202-1 (80063)	2	2	5	10
5940-553-2581	POST BINDING U-106/U	2	2	5	10
5975-224-5260	ROD, GROUND MX-148/G				2
5975-705-5841	CLIP, CRADLE: N3 (06229)			2	2
5995-179-2923	CORD ASSEMBLY, ELECTRICAL: 1 ft lg; SC-C-564143-GRI (80063)			2	2
6210-087-4248	LIGHT INDICATOR: 37-0408-0331-245 (72619)			2	2

SECTION II. PRESCRIBED LOAD ALLOWANCE (CONTINUED)

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION USABLE ON CODE	(3) 15-DAY ORG. MAINT. ALLOWANCE			
		(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100
6210-921-6682	SHIELD, LAMP: SC-C-539466 (80063)			2	2
6210-930-1217	SHIELD, LAMP: SC-C-547186 (80063)				2
6230-239-3518	LIGHT, EXTENSION: SC-C-539496 (80063)				2
6230-729-9614	LANTERN, ELECTRIC: SC-C-539491 (80063)				2
6240-143-3070	LAMP, INCANDESCENT: (For extension light) 50 W/RS (24446)			2	2
6240-152-2996	LAMP, FLUORESCENT: SC-C-539495 (80063)	2	2	3	6
6240-155-8653	LAMP, INCANDESCENT: 25T8DC (24446)		2	2	3
6240-223-9100	LAMP, GLOW: NE51 (24446)		2	2	3
6240-635-9753	LAMP, GLOW: NE34 (24446)				2
6250-175-2559	LAMPHOLDER: 78 X 491 (24446)			2	2
6250-227-0317	LAMPHOLDER: 78 X 736 (24446)			2	2
6250-299-2884	STARTER, FLOURESCENT LAMP: SC-B-539504 (80063)		2	2	3
6250-691-5966	LOCK, FLOURESCENT: P40 (83301)			2	2
6250-804-3449	BALLAST, LAMP: 89G457D (24446)			2	2
6250-995-9074	LAMPHOLDER: (For cold start lamps) 12-240 (72619)				2

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code — USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
	5815-878-4618	A001 CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9A (This item is nonexpendable)								
P-O	6625-854-6787	A002 AMMETER: MR36W100ACAAR (81349)	EA	1	*	*	*	*		
P-C	5110-115-5049	A003 AXE, SINGLE BIT: SC-C-539451 (80063)	EA	1	*	*	*	*		
P-O	6250-804-3449	A004 BALLAST, LAMP: 890457D (24446)	EA	10	*	*	2	2		
P-C	4210-288-6849	A005 BRACKET, FIRE EXTINGUISHER: RB-1 (33525)	EA	1	*	*	*	*		
P-C	7920-178-8315	A006 BRUSH, DUSTING, BENCH: SC-C-539469 (80063)	EA	1	*	*	*	*		
P-O	5995-134-7159	A007 CABLE ASSEMBLY, POWER ELECTRICAL CX-7453A/U: (100 ft lg)	EA	1	*	*	*	*		
P-C	5995-935-2704	A008 CABLE ASSEMBLY, POWER ELECTRICAL: (For air conditioner) (stowed) 4 ft lg; SC-D-543403 GRI (80063)	EA	1	*	*	*	*		
P-O	6145-752-2473	A009 CABLE, POWER, ELECTRICAL WT-26/U: (For CX-7453A/U and CX-7705/U power cable assys) (order as required)	FT	115	*	*	*	*		
P-O	5940-254-2244	A010 CAP, ELECTRICAL: (For U-106/U) SC-C-76202-1 (80063)	EA	272	2	2	5	10		
P-O	5910-498-8455	A011 CAPACITOR, FIXED, ELECTROLYTIC: F/fan: 3S2950 (56289)	EA	1	*	*	*	2		
P-O	5925-105-0046	A012 CIRCUIT BREAKER: QO-120 (88753)	EA	2	*	*	*	2		
P-O	5925-818-4811	A013 CIRCUIT BREAKER: QO-115 (81487)	EA	3	*	*	2	2		
P-O	5925-930-7539	A014 CIRCUIT BREAKER: QO-2020 (88753)	EA	1	*	*	*	*		
P-O	5925-999-7337	A015 CIRCUIT BREAKER: QO-260 (90211)	EA	1	*	*	*	*		
P-O	5975-705-5841	A016 CLIP, CRADLE: N3 (06229)	EA	10	*	*	2	2		
P-O	5340-592-7996	A017 CLIP, RETAINING: N7 (06229)	EA	8	*	*	*	2		
P-C	6645-410-2395	A018 CLOCK, WALL: SC-C-539475 (80063)	EA	1	*	*	*	*		
P-O	5935-064-5731	A019 CONNECTOR, PLUG, ELECTRICAL U-237B/G: (For 100 ft and 15 ft cable assys)	EA	3	*	*	2	2		
P-O	5935-201-8467	A020 CONNECTOR, PLUG ELECTRICAL: (For switch box for TT-98/TG and TH-22/TG) 5264 (74545)	EA	1	*	*	*	*		
P-O	5935-045-9832	A021 CONNECTOR, RECEPTACLE, ELECTRICAL U-187A/G	EA	5	*	*	2	2		
P-O	5935-064-5732	A022 CONNECTOR, RECEPTACLE, ELECTRICAL U-238B/G: (Mtd in pwr ent box)	EA	2	*	*	2	2		
P-O	5935-258-4663	A023 CONNECTOR, RECEPTACLE, ELECTRICAL: (Mounted in switch box assembly for TT-98/FG and TH-22/TG) 5262 (74545)	EA	7	*	*	2	2		
P-O	5935-642-3652	A024 CONNECTOR, RECEPTACLE, ELECTRICAL: 5261 (74545)	EA	2	*	*	*	2		
P-O	5935-665-7628	A025 CONNECTOR, RECEPTACLE, ELECTRICAL: 7310B (74545)	EA	1	*	*	*	*		
P-O	5935-933-3454	A026 CONNECTOR, RECEPTACLE, ELECTRICAL: 5361 (74545)	EA	2	*	*	*	2		
P-C	5995-179-2923	A027 CORD ASSEMBLY, ELECTRICAL: 1 ft lg; SC-C-564143-GRI (80063)	EA	4	*	*	2	2		
P-O	5975-947-3068	A028 COVER, CONNECTOR, RECEPTACLE: M3780FS (21873)	EA	-	*	*	*	*		
P-C	5120-293-2692	A029 EXTRACTOR, ELECTRON TUBE: SC-B-539548 (80063)	EA	1	*	*	*	*		
P-C	5120-293-2696	A030 EXTRACTOR, ELECTRON TUBE: SC-B-539547 (80063)	EA	1	*	*	*	*		
P-O	5915-116-8916	A031 FILTER, RADIO INTERFERENCE: 591B (02777)	EA	10	*	*	2	2		

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-C	5120-946-5148	A032 GRIP, CABLE, WOVEN: (Signal) SC-B-539592 (80063)		EA	5	*	*	2	2		
P-C	5120-946-5114	A033 GRIP, CABLE, WOVEN: (Power) SC-B-539593 (80063)		EA	1	*	*	*	*		
P-C	5120-251-4489	A034 HAMMER, HAND: SC-C-539505 (80063)		EA	1	*	*	*	*		
P-O	5935-686-0274	A035 JACK, TELEPHONE: PJ123 (70674)		EA	10	*	*	2	2		
P-O	5935-947-1145	A036 JACK, TELEPHONE: PJ117 (70674)		EA	8	*	*	*	2		
P-C	2540-892-6243	A037 LADDER, VEHICLE, BOARDING MX-3391/G		EA	1	*	*	*	*		
P-C	6240-152-2996	A038 LAMP, FLOURESCENT: SC-C-539495 (80063)		EA	10	2	2	3	6		
P-C	6240-223-9100	A039 LAMP, GLOW: NE51 (24446)		EA	9	*	2	2	3		
P-C	6240-635-9753	A040 LAMP, GLOW: NE34 (24446)		EA	1	*	*	*	2		
P-C	6240-143-3070	A041 LAMP, INCANDESCENT: (For extension light) 50W/RS (24446)		EA	1	*	*	2	2		
P-C	6240-155-8653	A042 LAMP, INCANDESCENT: 25T8DC (24446)		EA	8	*	2	2	3		
P-O	6250-175-2559	A043 LAMPHOLDER: 78 X 491 (24446)		EA	10	*	*	2	2		
P-O	6250-227-0317	A044 LAMPHOLDER: 78 X 736 (24446)		EA	10	*	*	2	2		
P-O	6250-299-6562	A045 LAMPHOLDER: 4109 (74545)		EA	1	*	*	*	*		
P-O	6250-995-9074	A046 LAMPHOLDER: (For cold start lamps) 12-240 (72619)		EA	8	*	*	*	2		
P-C	6230-729-9614	A047 LANTERN, ELECTRIC: SC-C-539491 (80063)		EA	1	*	*	*	2		
P-C	4940-752-2525	A048 LEAD, ELECTRICAL: SC-B-539492 (80063)		EA	1	*	*	2	2		
P-C	6230-239-3518	A049 LIGHT, EXTENSION: SC-C-539496 (80063)		EA	1	*	*	*	2		
P-O	6210-087-4248	A050 LIGHT, INDICATOR: 37-0408-0331-245 (72619)		EA	9	*	*	2	2		
P-O	6250-691-5966	A051 LOCK, FLOURESCENT: P40 (83301)		EA	20	*	*	2	2		
P-O	6105-954-4947	A052 MOTOR, ALTERNATING CURRENT: SC-D-539615-2 (80063)		EA	1	*	*	*	*		
P-O	5940-553-2581	A053 POST BINDING U-106/U		EA	272	2	2	5	10		
P-C	8130-656-1090	A054 REEL, CABLE RC-435/U		EA	1	*	*	*	*		
P-C	5975-224-5260	A055 ROD, GROUND MX-148/G		EA	1	*	*	*	2		
P-O	6210-921-6682	A056 SHIELD, LAMP: SC-C-539466 (80063)		EA	10	*	*	2	2		
P-O	6210-930-1217	A057 SHIELD, LAMP: SC-C-547186 (80063)		EA	4	*	*	*	2		
P-C	6250-299-2884	A058 STARTER, FLUORESCENT LAMP· SC-B-539504· (80063)		EA	10	*	2	2	3		
P-O	5930-944-1086	A059 SWITCH, PUSH: BZ2RQ181T (91929)		EA	1	*	*	*	2		
P-C	5930-832-8193	A060 SWITCH, THERMOSTATIC: T473B1002 (40931)		EA	1	*	*	*	*		
P-O	5930-258-5549	A061 SWITCH, TOGGLE: 2140 (79725)		EA	1	*	*	*	*		
P-O	5930-615-7896	A062 SWITCH, TOGGLE: (Mounted on switch panel for TT-98/FG and TH-22/TG) MS25098-22 (96906)		EA	2	*	*	*	2		
P-O	5930-865-6101	A063 SWITCH, TOGGLE: 5521-1 (24446)		EA	5	*	*	2	2		
P-O	5950-892-8208	A064 TRANSFORMER, CURRENT: 3CT11B (93993)		EA	1	*	*	*	*		
P-O	6625-682-4723	A065 VOLTMETER: MR36W150ACVVR (81349)		EA	1	*	*	*	*		

SECTION V. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
	5815-878-4618	A001 CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9A (This item is nonexpendable)												
P-O	6625-854-6787	A002 AMMETER: MR36W100ACAAR (81349)	EA	1	*	*	*	*	*	*	5	5		
P-C	5110-115-5049	A003 AXE, SINGLE BIT: SC-C-539451 (80063)	EA	1	*	*	*	*	*	*	5	5		
P-O	6250-804-3449	A004 BALLAST, LAMP: 890457D (24446)	EA	10	2	2	3	2	2	2	33	20		
P-C	4210-288-6849	A005 BRACKET, FIRE EXTINGUISHER: RB-1 (33525)	EA	1	*	*	*	*	*	*	4	5		
P-C	7920-178-8315	A006 BRUSH, DUSTING, BENCH: SC-C-539469 (80063)	EA	1	*	*	2	*	*	*	8	3		
P-O	5995-134-7159	A007 CABLE ASSEMBLY, POWER ELECTRICAL CX-7453A/U: (100 ft lg)	EA	1	*	*	2	*	*	*	8	6		
P-C	5995-935-2704	A008 CABLE ASSEMBLY, POWER ELECTRICAL: (For air conditioner stowed) 4 ft lg: SC-D-543403 GRI (80063)	EA	1	*	*	2	*	*	*	10	6		
P-O	6145-752-2473	A009 CABLE, POWER, ELECTRICAL WT-26/U: (For CX-7453A/U and CX-7705/U power cable assys) (order as required)	FT	115	*	*	*	*	*	*	345	1150		
P-O	5940-254-2244	A010 CAP, ELECTRICAL: (For U-106/U) SC-C-76202-1 (80063)	EA	272	4	10	18	2	3	5	215	1160		
P-O	5910-498-8455	A011 CAPACITOR, FIXED, ELECTROLYTIC: F/fan: 3S2950 (56289)	EA	1	*	2	2	*	2	2	12	10		
P-O	5925-105-0046	A012 CIRCUIT BREAKER: QO-120 (88753)	EA	2	*	2	2	*	2	2	13	12		
P-O	5925-818-4811	A013 CIRCUIT BREAKER: QO-115 (81487)	EA	3	2	2	2	*	2	2	18	18		
P-O	5925-930-7539	A014 CIRCUIT BREAKER: QO-2020 (88753)	EA	1	*	*	2	*	*	*	8	6		
P-O	5925-999-7337	A015 CIRCUIT BREAKER: QO-260 (90211)	EA	1	*	*	2	*	*	*	8	6		
P-O	5975-705-5841	A016 CLIP, CRADLE: N3 (06229)	EA	10	2	2	2	*	2	2	19	50		
P-O	5340-592-7996	A017 CLIP, RETAINING: N7 (06229)	EA	8	2	2	2	*	2	2	16	40		
P-C	6645-410-2395	A018 CLOCK, WALL: SC-C-539475 (80063)	EA	1	*	*	*	*	*	*	4	5		
P-O	5935-064-5731	A019 CONNECTOR, PLUG, ELECTRICAL U-237B/G: (For 100 ft and 15 ft cable assys)	EA	3	2	2	2	*	2	2	18	9		
P-O	5935-201-8467	A020 CONNECTOR, PLUG, ELECTRICAL: (For switch box for TT-98/TG and TH-22/TG) 5264 (74545)	EA	1	*	*	2	*	*	*	8	6		
P-O	5935-045-9832	A021 CONNECTOR, RECEPTACLE, ELECTRICAL U-187A/G	EA	5	2	2	2	2	2	2	27	25		
P-O	5935-064-5732	A022 CONNECTOR, RECEPTACLE, ELECTRICAL U-238B/G: (Mtd in pwr ent box)	EA	2	2	2	2	*	2	2	19	10		
P-O	5935-258-4663	A023 CONNECTOR, RECEPTACLE, ELECTRICAL: (Mounted in switch box assembly for TT-98/FT & TT-22/TG: 5262 (74545)	EA	7	2	2	2	2	2	2	27	25		

SECTION V. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-O	5935-642-3652	A024 CONNECTOR, RECEPTACLE, ELECTRICAL: 5261 (74545)	EA	2	*	2	2	*	2	2	13	12		
P-O	5935-665-7628	A025 CONNECTOR, RECEPTACLE, ELECTRICAL: 7310B (74545)	EA	1	*	*	2	*	*	*	8	6		
P-O	5935-933-3454	A026 CONNECTOR, RECEPTACLE, ELECTRICAL: 5361 (74545)	EA	2	*	2	2	*	2	2	13	12		
P-C	5995-179-2923	A027 CORD ASSEMBLY, ELECTRICAL: 1 ft lg: SC-C-564143-GRI (80063)	EA	4	2	2	2	*	2	2	19	24		
P-O	5975-947-3068	A028 COVER, CONNECTOR, RECEPTACLE: M3780FS (21873)	EA	1	*	*	*	*	*	*	5	2		
P-C	5120-293-2692	A029 EXTRACTOR, ELECTRON TUBE: SC-B-539548 (80063)	EA	1	*	*	*	*	*	*	4	5		
P-C	5120-293-2696	A030 EXTRACTOR, ELECTRON TUBE: SC-B-539547 (80063)	EA	1	*	*	*	*	*	*	4	5		
P-O	5915-116-8916	A031 FILTER, RADIO INTERFERENCE: 591B (02777)	EA	10	2	3	4	2	2	2	46	60		
P-C	5120-946-5148	A032 GRIP, CABLE, WOVEN: (Signal) SC-B-539592 (80063)	EA	5	2	2	2	*	2	2	19	50		
P-C	5120-946-5114	A033 GRIP, CABLE, WOVEN: (Power) SC-B-539593 (80063)	EA	1	*	*	*	*	*	*	5	10		
P-C	5120-251-4489	A034 HAMMER, HAND: SC-C-539505 (80063)	EA	1	*	*	*	*	*	*	5	5		
P-O	5935-686-0274	A035 JACK, TELEPHONE: PJ123 (70674)	EA	10	2	2	2	*	2	2	19	30		
P-O	5935-947-1145	A036 JACK, TELEPHONE: PJ117 (70674)	EA	8	2	2	2	*	2	2	16	24		
P-C	2540-892-6243	A037 LADDER, VEHICLE, BOARDING MX-3391/G	EA	1	*	*	*	*	*	*	4	5		
P-C	6240-152-2996	A038 LAMP, FLOURESCENT: SC-C-539495 (80063)	EA	10	2	6	11	2	2	3	130	500		
P-C	6240-223-9100	A039 LAMP, GLOW: NE51 (24446)	EA	9	2	3	5	2	2	2	59	450		
P-C	6240-635-9753	A040 LAMP, GLOW: NE34 (24446)	EA	1	*	2	2	*	2	2	12	50		
P-C	6240-143-3070	A041 LAMP, INCANDESCENT: (For extension light) 50 w/rs; (24446)	EA	1	2	2	2	*	2	2	19	50		
P-C	6240-155-8653	A042 LAMP, INCANDESCENT: 25T8DC (24446)	EA	8	2	4	8	2	2	2	101	400		
P-O	6250-175-2559	A043 LAMPHOLDER: 78 X 491 (24446)	EA	10	2	2	2	*	2	2	19	50		
P-O	6250-227-0317	A044 LAMPHOLDER: 78 X 736 (24446)	EA	10	2	2	2	*	2	2	19	50		
P-O	6250-299-6562	A045 LAMPHOLDER: 4109 (74545)	EA	1	*	*	*	*	*	*	4	5		
P-O	6250-995-9074	A046 LAMPHOLDER: (For cold start lamps) 12-240 (72619)	EA	8	2	2	2	*	2	2	16	40		
P-C	6230-729-9614	A047 LANTERN, ELECTRIC: SC-C-539491 (80063)	EA	1	*	2	2	*	2	2	12	10		
P-C	4940-752-2525	A048 LEAD, ELECTRICAL: SC-B-539492 (80063)	EA	1	2	2	2	2	2	2	27	10		
P-C	6230-239-3518	A049 LIGHT, EXTENSION: SC-C-539496 (80063)	EA	1	*	2	2	*	2	2	12	10		
P-O	6210-087-4248	A050 LIGHT, INDICATOR: 37-0408-03312-245(72619)	EA	9	2	2	2	*	2	2	18	27		

SECTION V. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-O	6250-691-5966	A051 LOCK, FLOURESCENT: P40 (83301)		EA	20	2	2	3	2	2	2	33			
P-O	6105-954-4947	A052 MOTOR, ALTERNATING CURRENT: SC-D-539615-2 (80063)		EA	1	*	*	2	*	*	2	8	3		
P-O	5940-553-2581	A053 POST BINDING U-106/U		EA	272	4	10	18	2	3	5	215	1160		
P-C	8130-656-1090	A054 REEL, CABLE RC-435/U		EA	1	*	*	*	*	*	*	5	2		
P-C	5975-224-5260	A055 ROD, GROUND MX-148/G		EA	1	*	2	2	*	2	2	12	15		
P-O	6210-921-6682	A056 SHIELD, LAMP: SC-C-539466 (80063)		EA	10	2	2	3	2	2	2	33	50		
P-O	6210-930-1217	A057 SHIELD, LAMP: SC-C-547186 (80063)		EA	4	2	2	2	*	2	2	16	20		
P-C	6250-299-2884	A058 STARTER, FLUORESCENT LAMP: SC-B-539504 (80063)		EA	10	2	3	6	2	2	2	71	100		
P-O	5930-944-1086	A059 SWITCH, PUSH: BZ2RQ181T (91929)		EA	1	*	2	2	*	2	2	12	5		
P-C	5930-832-8193	A060 SWITCH, THERMOSTATIC: T473B1002 (40931)		EA	1	*	*	*	*	*	*	5	5		
P-O	5930-258-5549	A061 SWTICH, TOGGLE: 2140 (79725)		EA	1	*	*	2	*	*	*	8	3		
P-O	5930-615-7896	A062 SWITCH, TOGGLE: (Mounted on switch panel for TT-98/FG and TH-22/TG) MS25098-22 (96906)		EA	2	*	2	2	*	2	2	13	6		
P-O	5930-865-6101	A063 SWITCH, TOGGLE: 5521-1 (24446)		EA	5	2	2	2	2	2	2	27	15		
P-O	5950-892-8208	A064 TRANSFORMER, CURRENT: 3CT11B (93993)		EA	1	*	*	2	*	*	2	8	3		
P-O	6625-682-4723	A065 VOLTMETER: MR36W150ACVVR (81349)		EA	1	*	*	*	*	*	*	5	5		

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

USASA (2)
CNGB (1)
ACSC-E (2)
Dir of Trans (1)
CofEngrs (1)
TSG (1)
CofSptS (1)
USAARENBD (2)
USACDC Agcy (1)
USAMC (1)
CONARC (5)
ARADCOM (5)
ARADCOM Rgn (2)
OS Maj Comd (4)
LOGCOMD (2) except
  1st Log Comd (10)
  9th Log Comd (10)
USAMICOM (4)
USATECOM (2)
USASTRATCOM (4)
USAESC (70)
MDW (1)
Armies (2)
Corps (2)
1st Cav Div (5)
Svc Colleges (2)
USASCS (10)
USASESS (10)
USAADS (2)
USAFAS (2)
USAARMS (2)
USAIS (2)
USAES (2)
USAINTS (3)
USATC Armor (2)
USATC Inf (2)
USASTC (2)
WRAMC (1)
Sig FLDMS (2)
ATS (1)
USACDCEC (10)
Instl (2) except
  Fort Gordon (10)
  Fort Huachuca (10)
  WSMR (5)
  Fort Carson (23)
  Fort Knox (12)
Army Deps (2) except
  LBAD (14)
  SAAD (30)
  TOAD (14)
  LEAD (7)
  SHAD (3)
  NAAD (5)
  SVAD (5)
  CHAD (3)
  ATAD (10)
Sig Sec Gen Deps (5)
Gen Deps (2)
Sig Dep (12)
USAERDAA (2)
USAERDAW (13)
USACRREL (2)
MAAG (1)
USARMIS (1)
Units org under fol TOE (2 cys each):
  11-15
  11-17
  11-85
  11-87
  11-95
  11-97
  11-117
  11-125
  11-137
  11-158
  11-247
  11-357
  11-500(AA-AC)
  29-134
  31-105
  31-106

NG: State AG (3).
USAR: None.
For explanation of abreviations used, see AR 310-50.

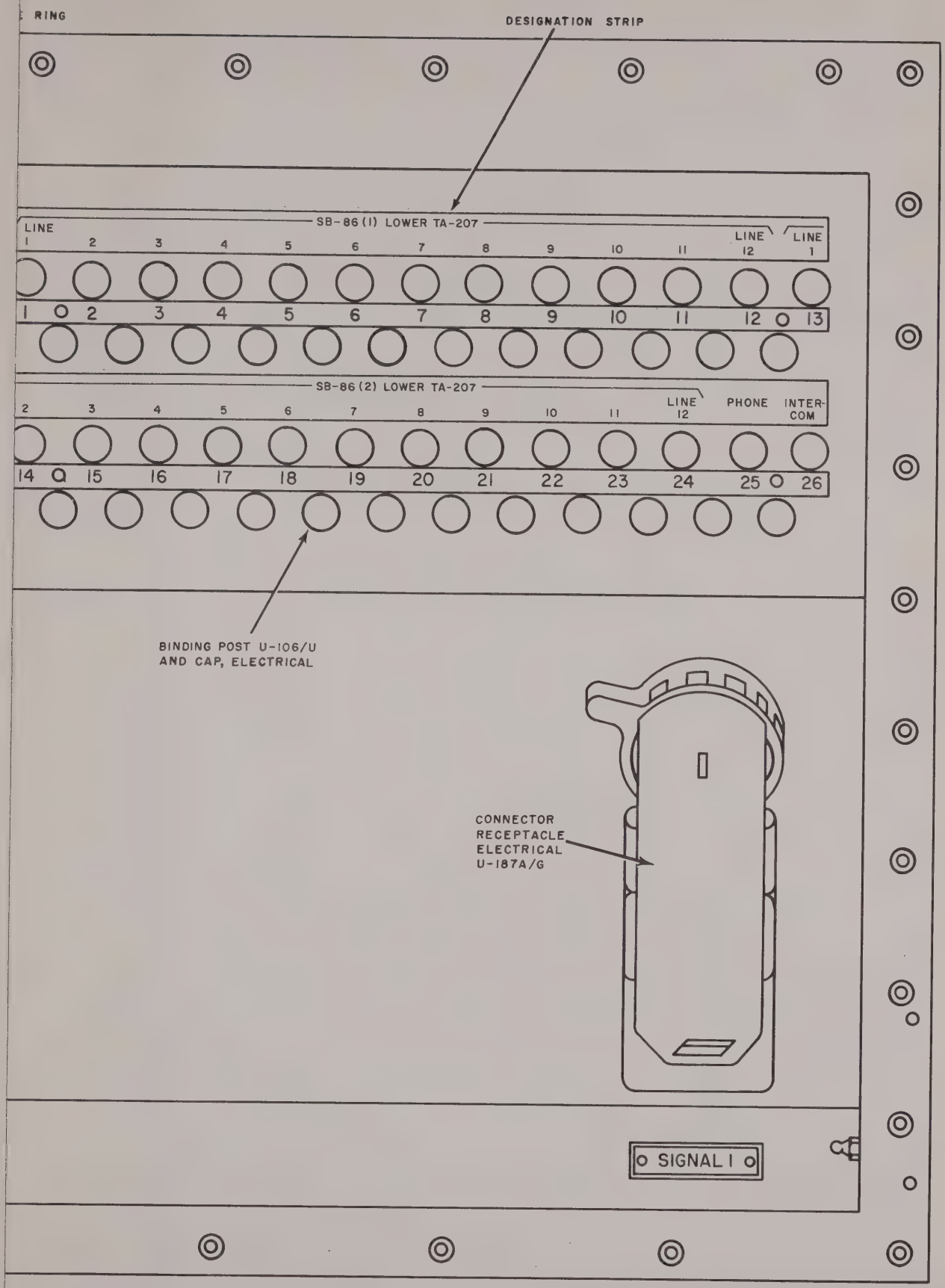


Figure 2-8. Signal 1 signal entrance box, cover removed.

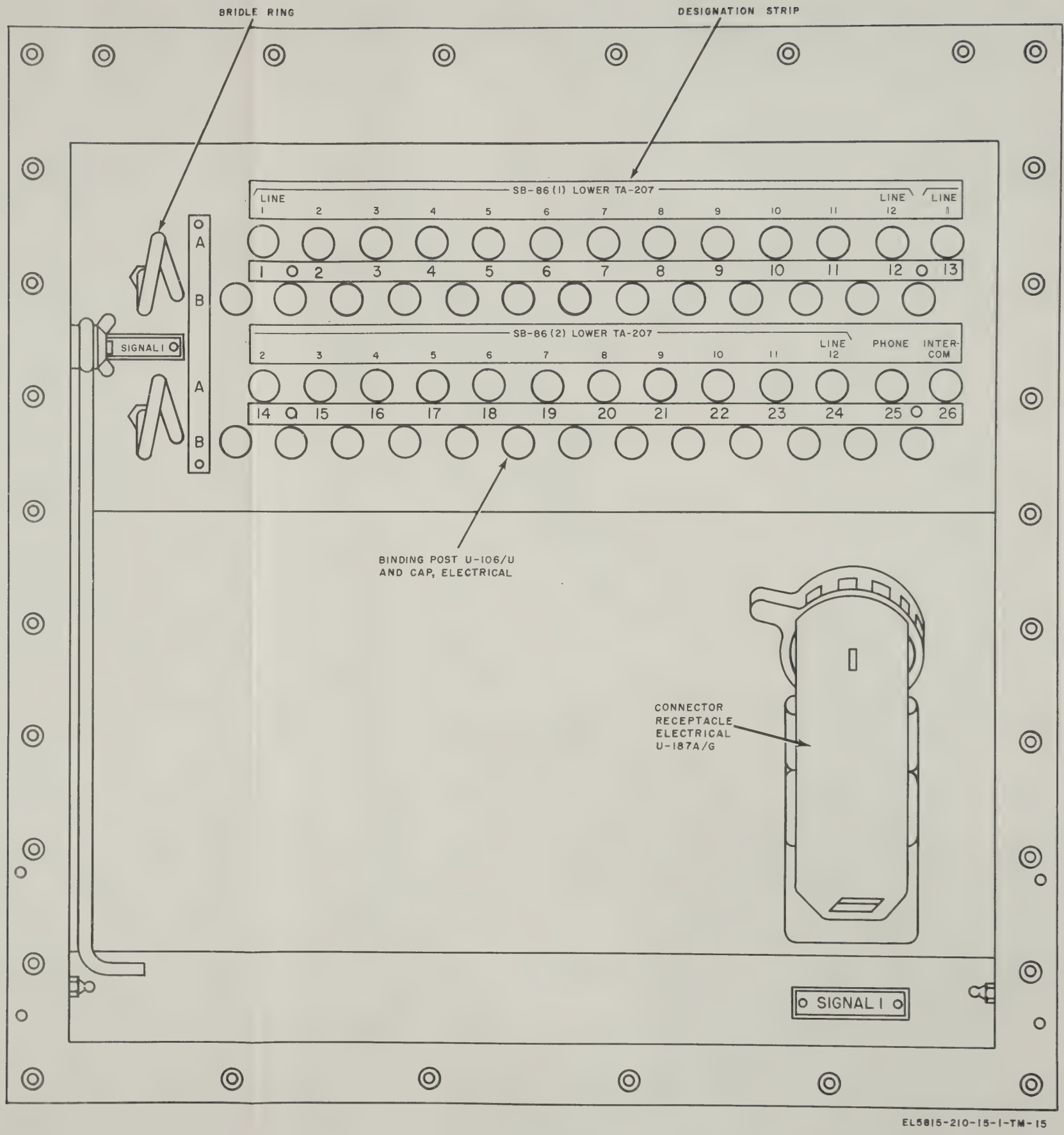
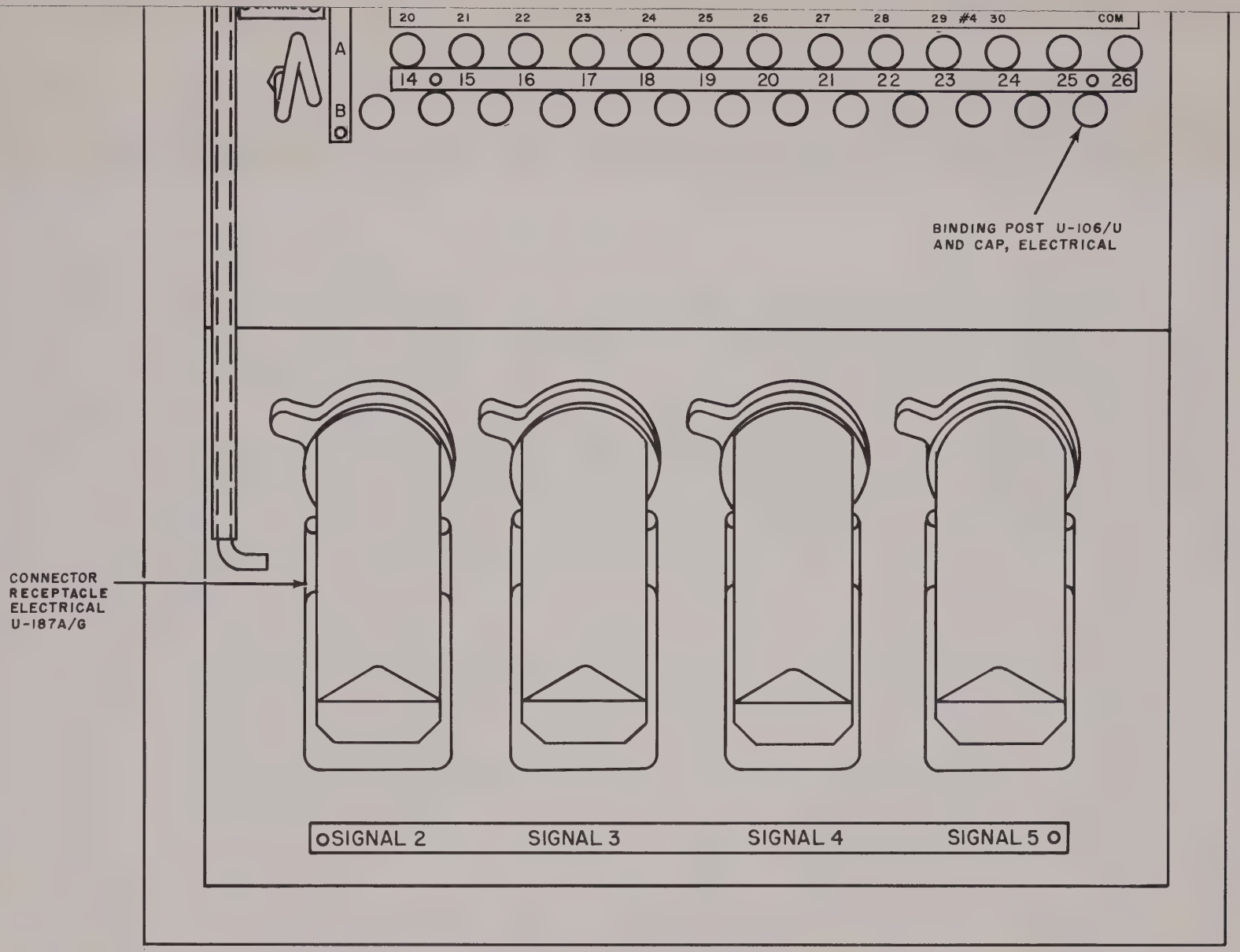

BRIDLE RING
DESIGNATION STRIP
SB-86(1) LOWER TA-207
LINE 1 2 3 4 5 6 7 8 9 10 11 LINE 12 LINE 11
1 2 3 4 5 6 7 8 9 10 11 12 13
A
B
SIGNAL I
A
B
SB-86(2) LOWER TA-207
2 3 4 5 6 7 8 9 10 11 LINE 12 PHONE INTER-COM
14 15 16 17 18 19 20 21 22 23 24 25 26
BINDING POST U-106/U
AND CAP, ELECTRICAL
CONNECTOR
RECEPTACLE
ELECTRICAL
U-187A/G
SIGNAL I
EL5815-210-15-1-TM-15

Figure 2–8. Signal 1 signal entrance box, cover removed.



EL5815-210-15-1-TM-16

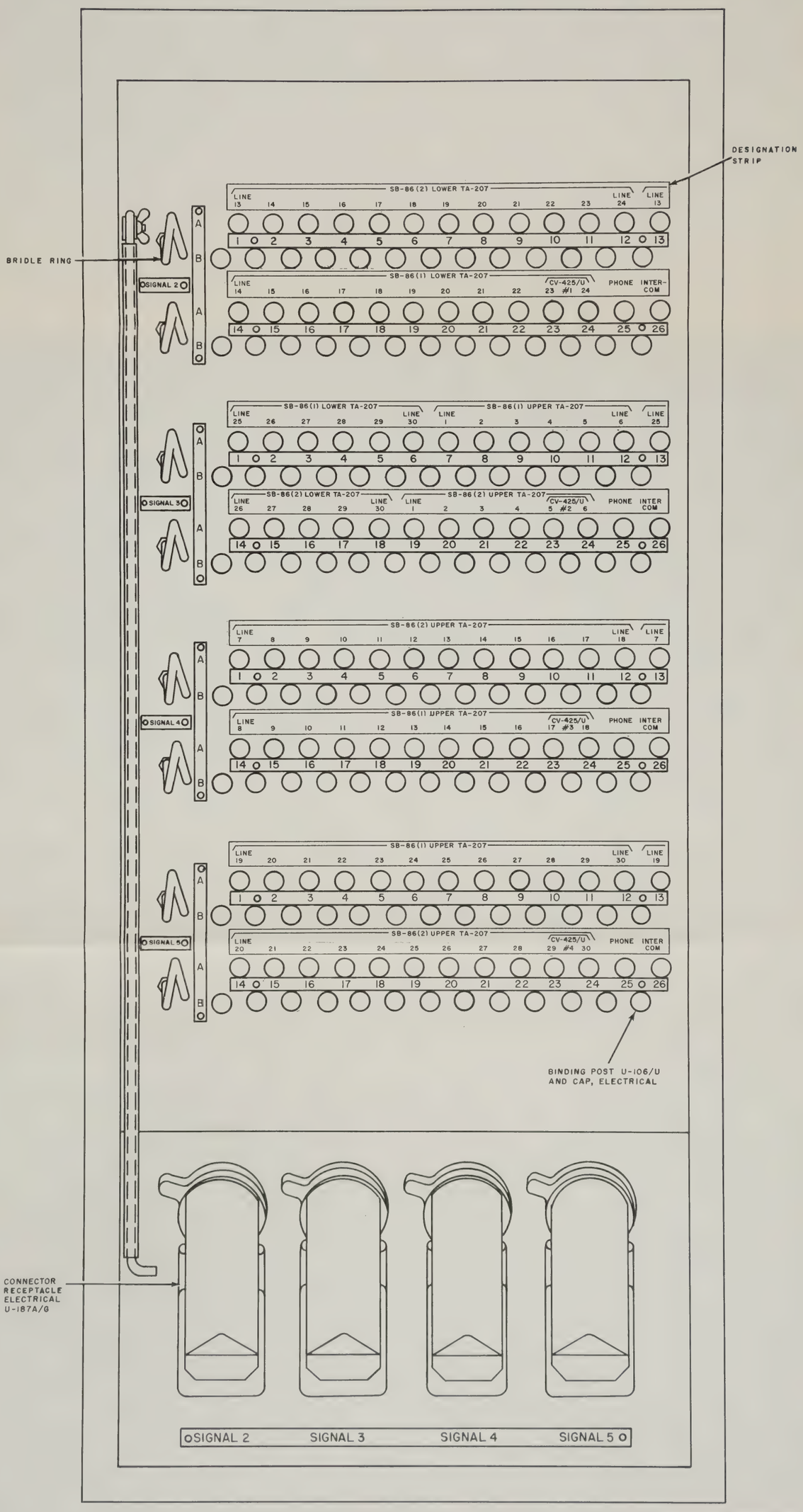
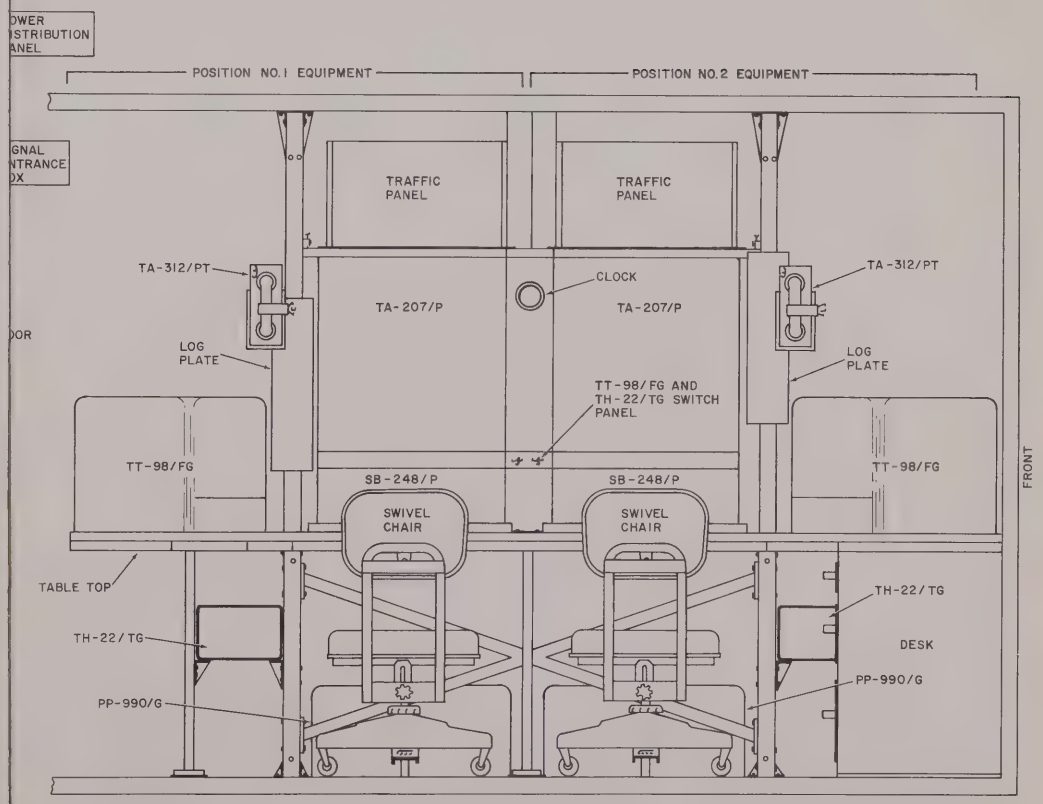


Figure 2–9. Signal 2 through 5 signal entrance box, cover removed.



VIEW A-A

EL5815-210-15-1-TM-1

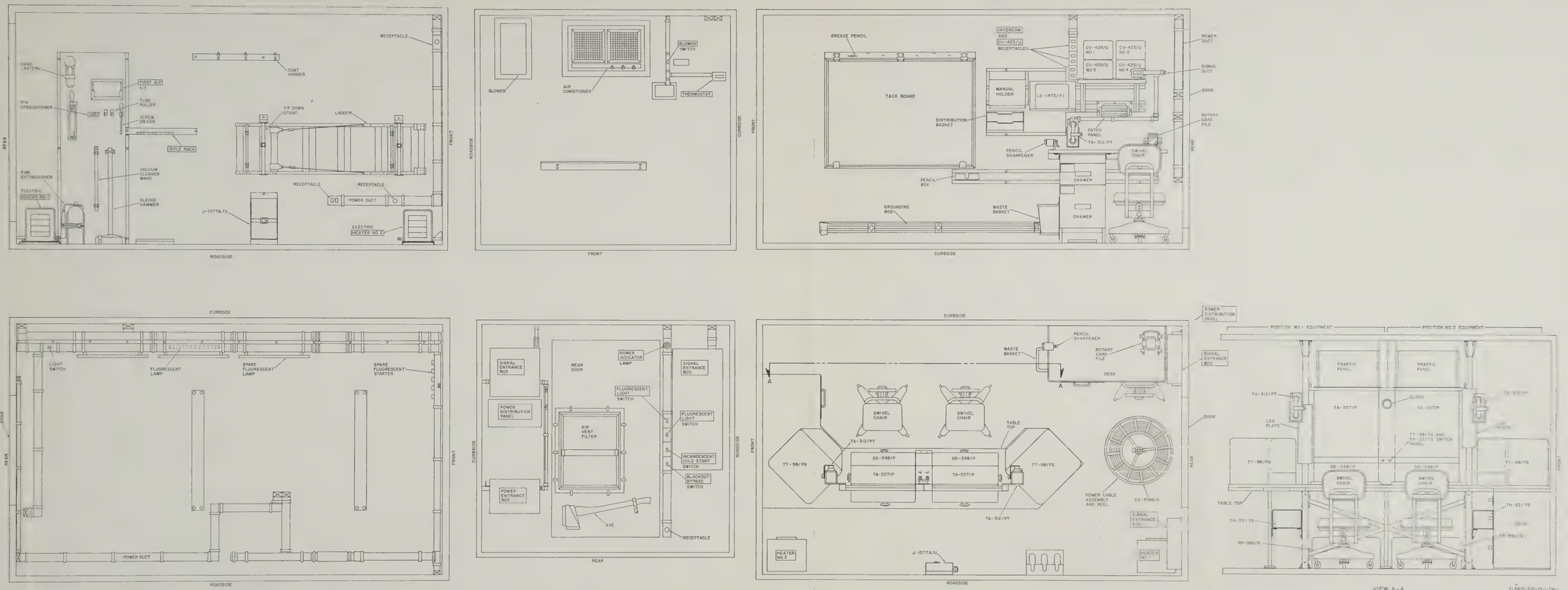
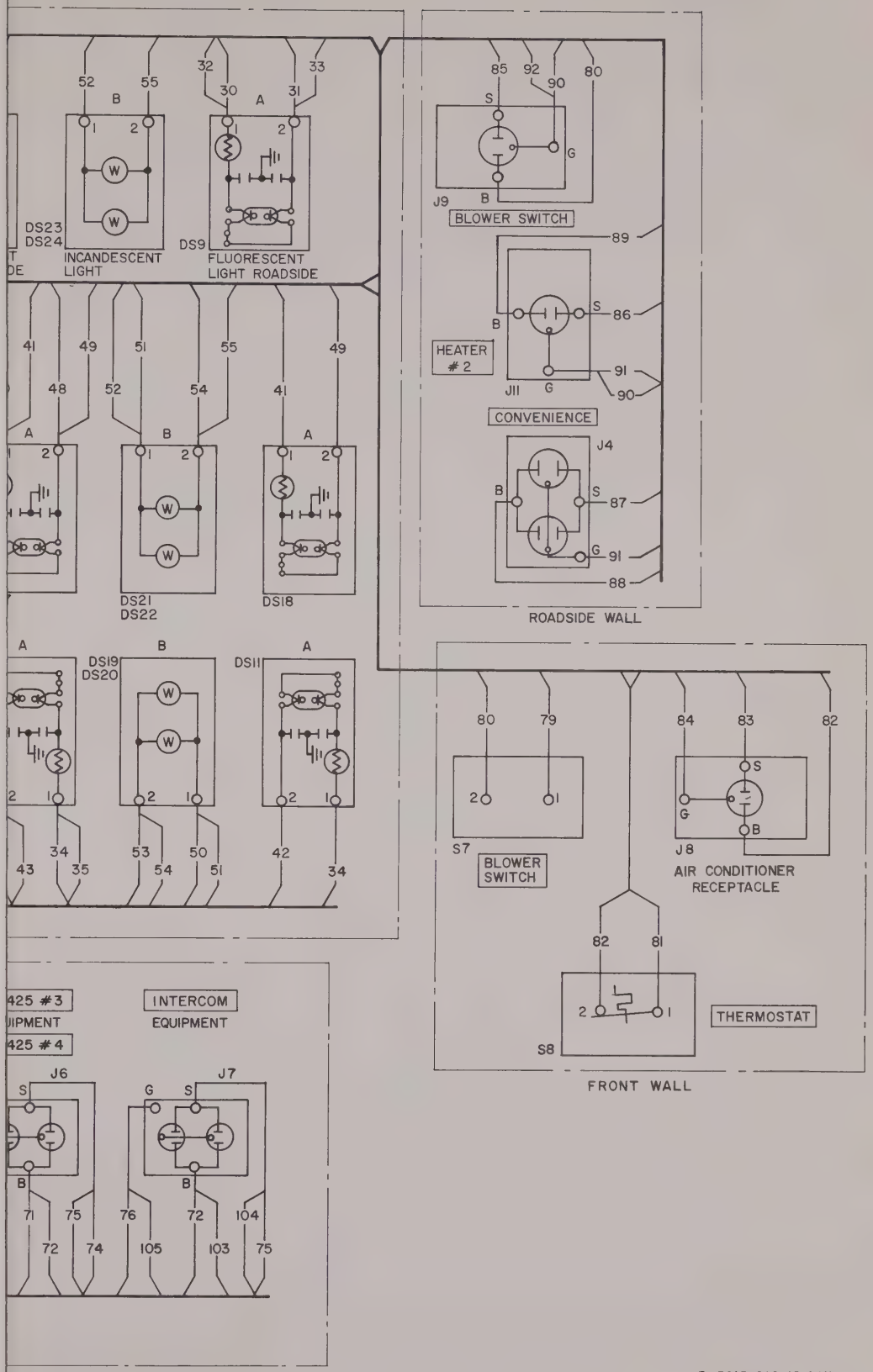


Figure 5-1. Central office, teletypewriter, AN/MGC-9A, elevations diagram.



EL5815-210-15-1-TM-2

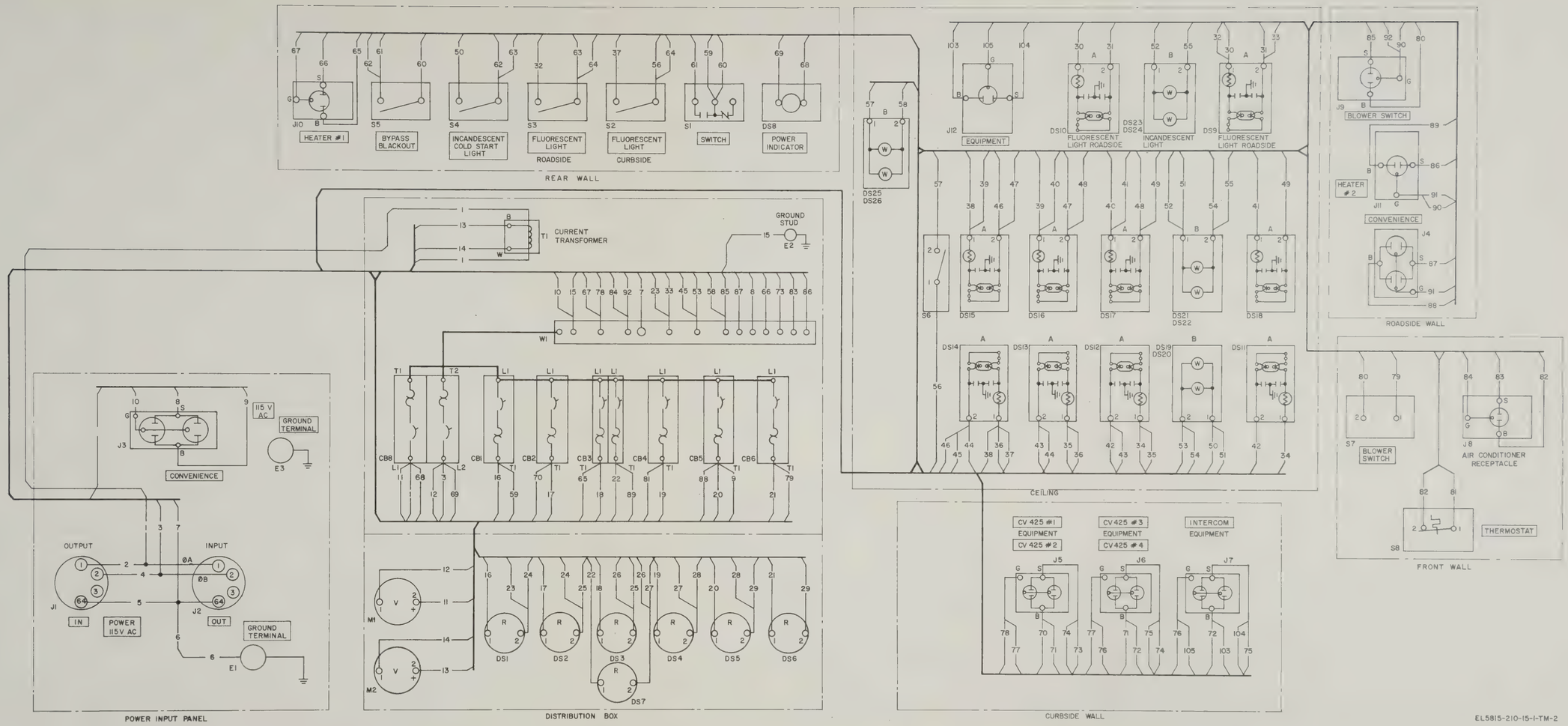
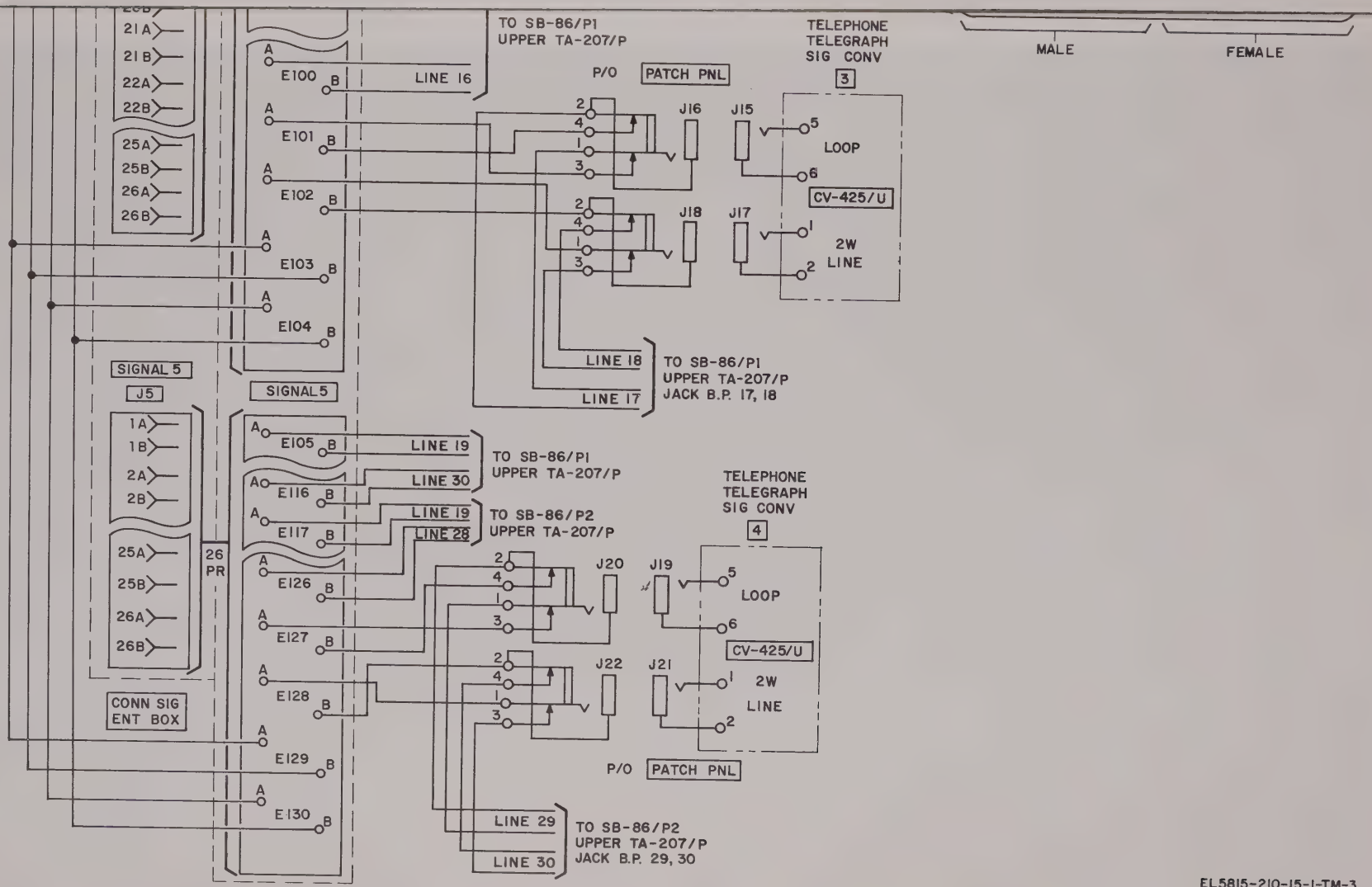


Figure 5-2. AN/MGC-9A, power schematic wiring diagram.



EL5815-210-15-1-TM-3

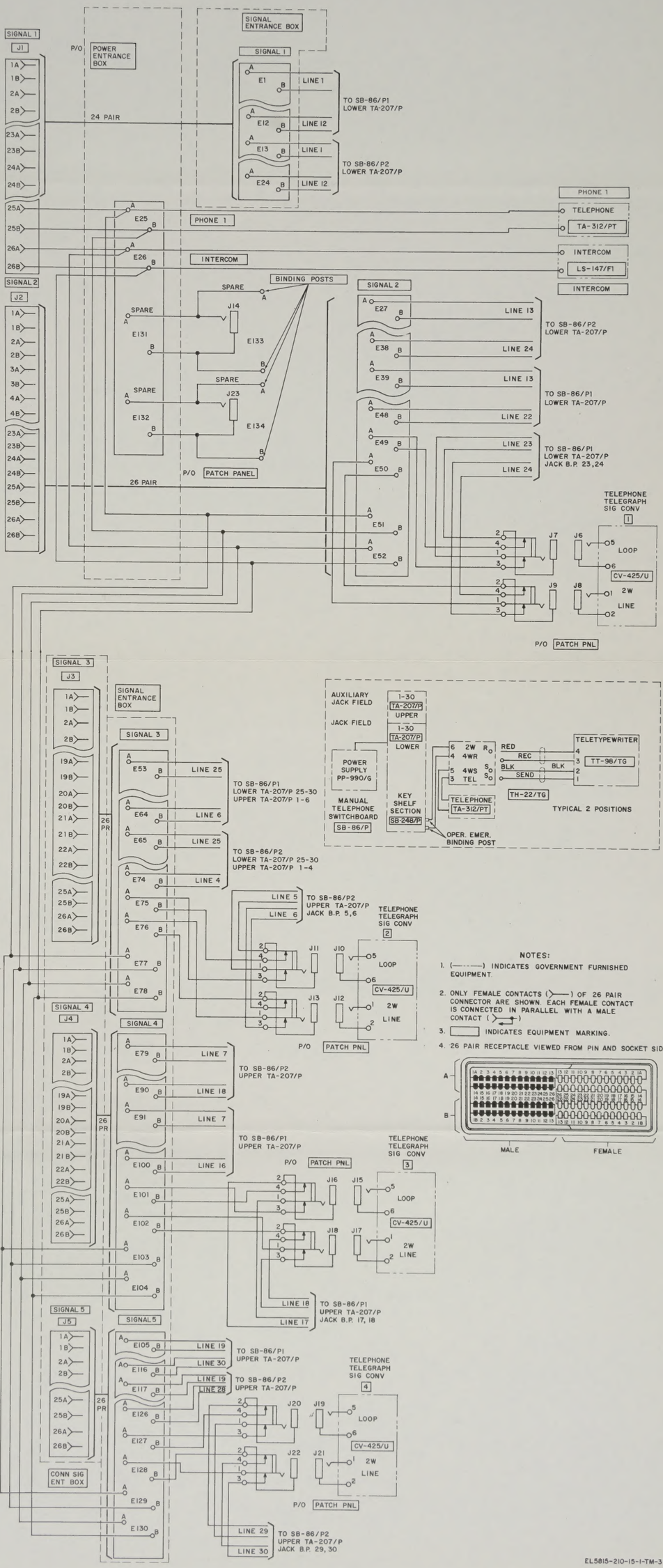


Figure 5-3. AN/MGC-94 signal schematic wiring diagram.